DUPLICATE

#27
BA 12/24/02

FIG. 1

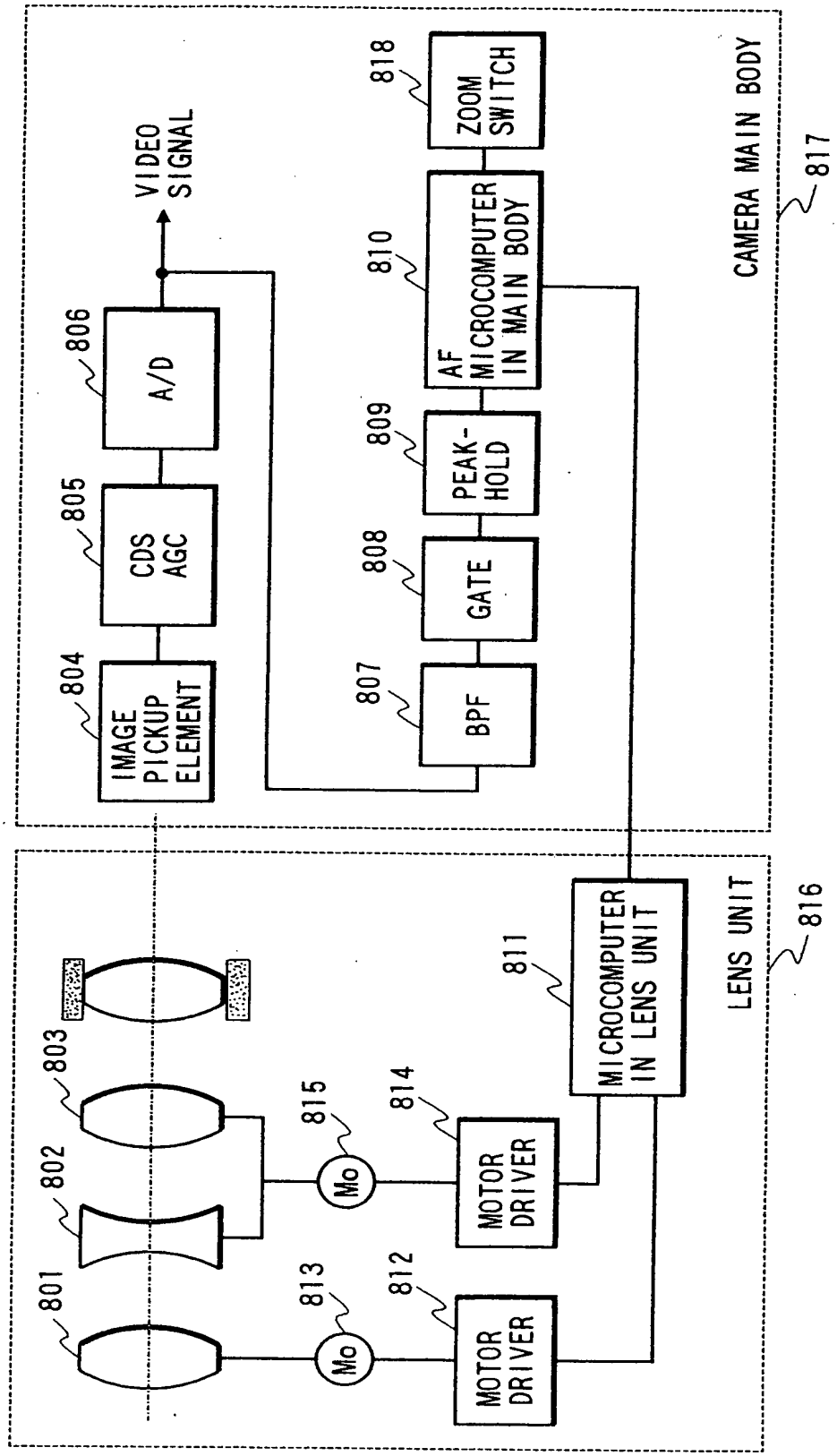


FIG. 2

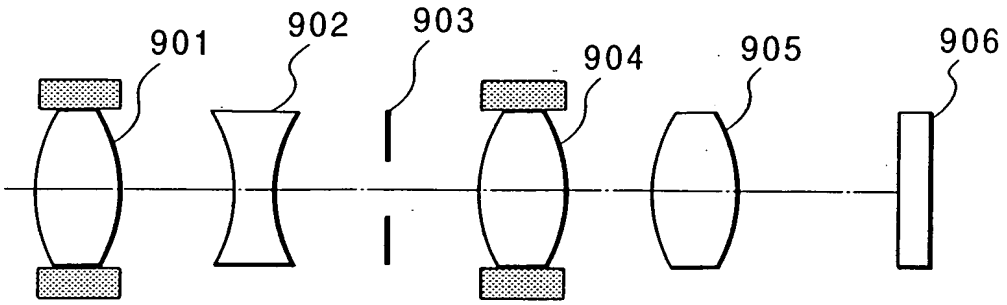

901
902
903
904
905
906

FIG. 3

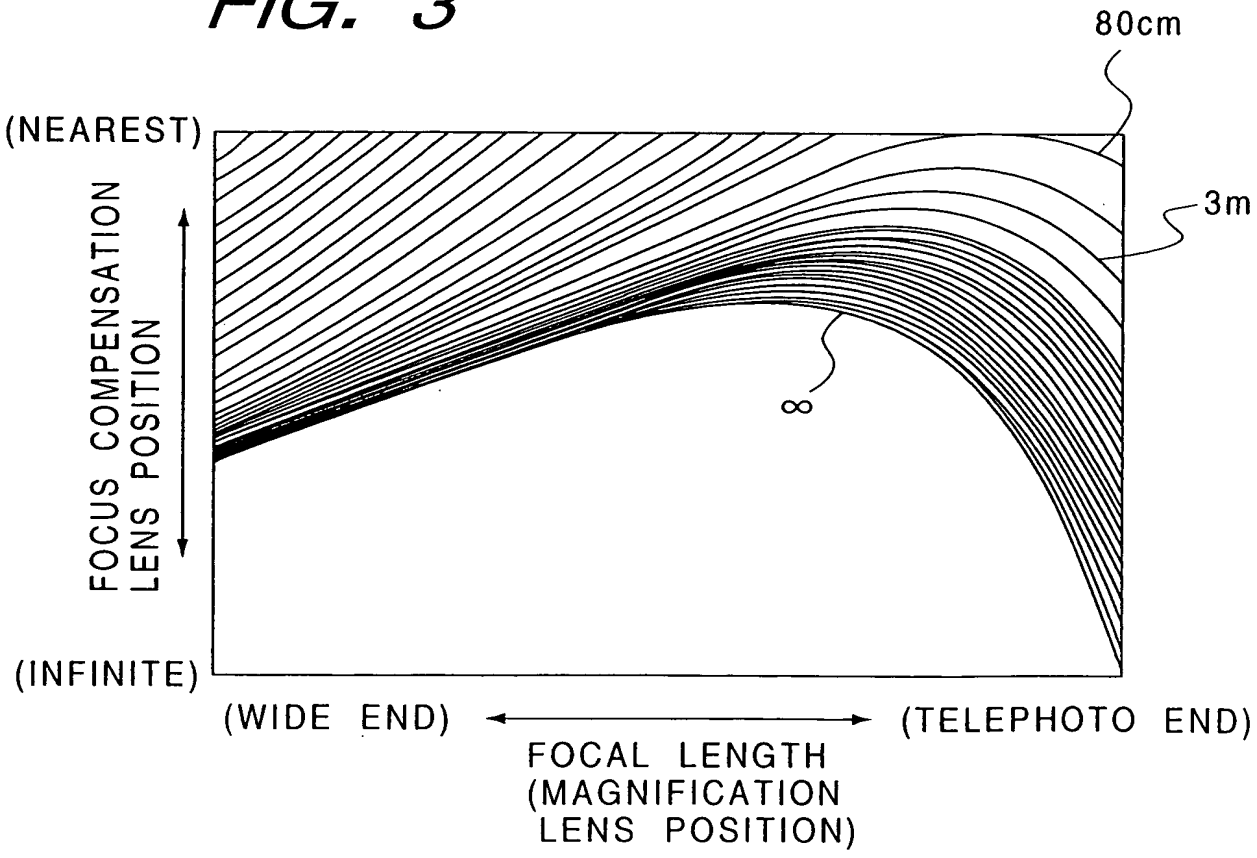

80cm
3m
∞
(NEAREST)
FOCUS COMPENSATION LENS POSITION
(INFINITE)
(WIDE END)
(TELEPHOTO END)
FOCAL LENGTH (MAGNIFICATION LENS POSITION)

FIG. 4

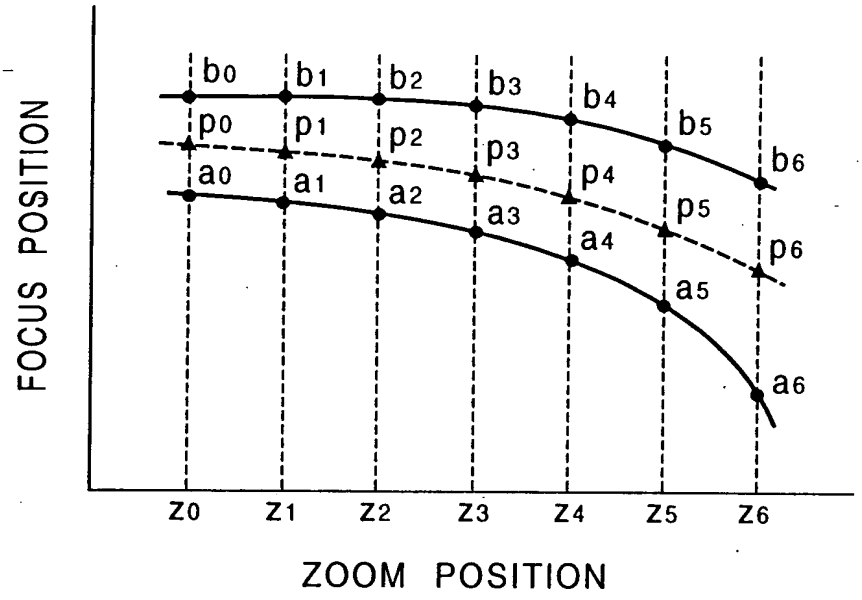
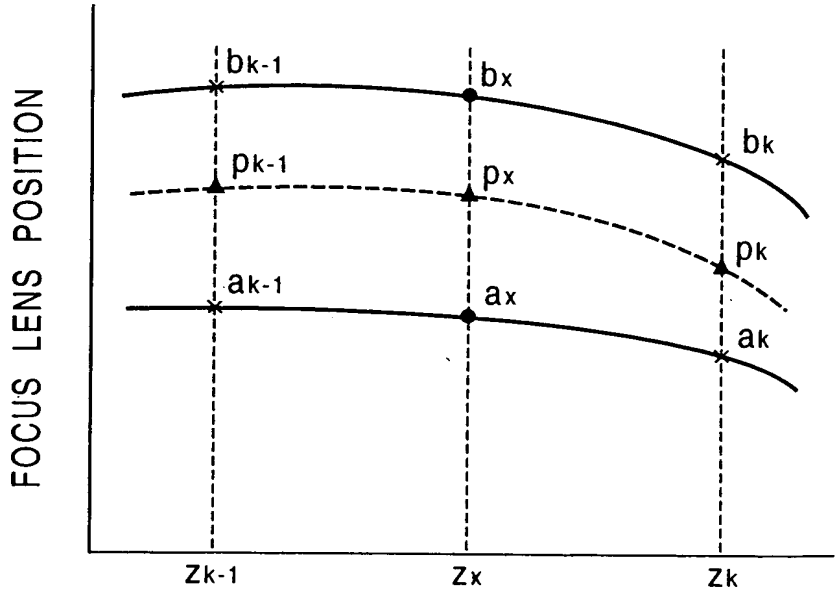


FIG. 5



$$a_x = a_k - \frac{(z_k - z_{k-1})(a_k - a_{k-1})}{(z_k - z_{k-1})}$$

$$b_x = b_k - \frac{(z_k - z_x)(b_k - b_{k-1})}{(z_k - z_{k-1})}$$

FIG. 6

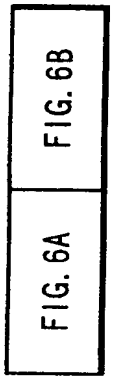


FIG. 6A
FIG. 6B

FIG. 6A

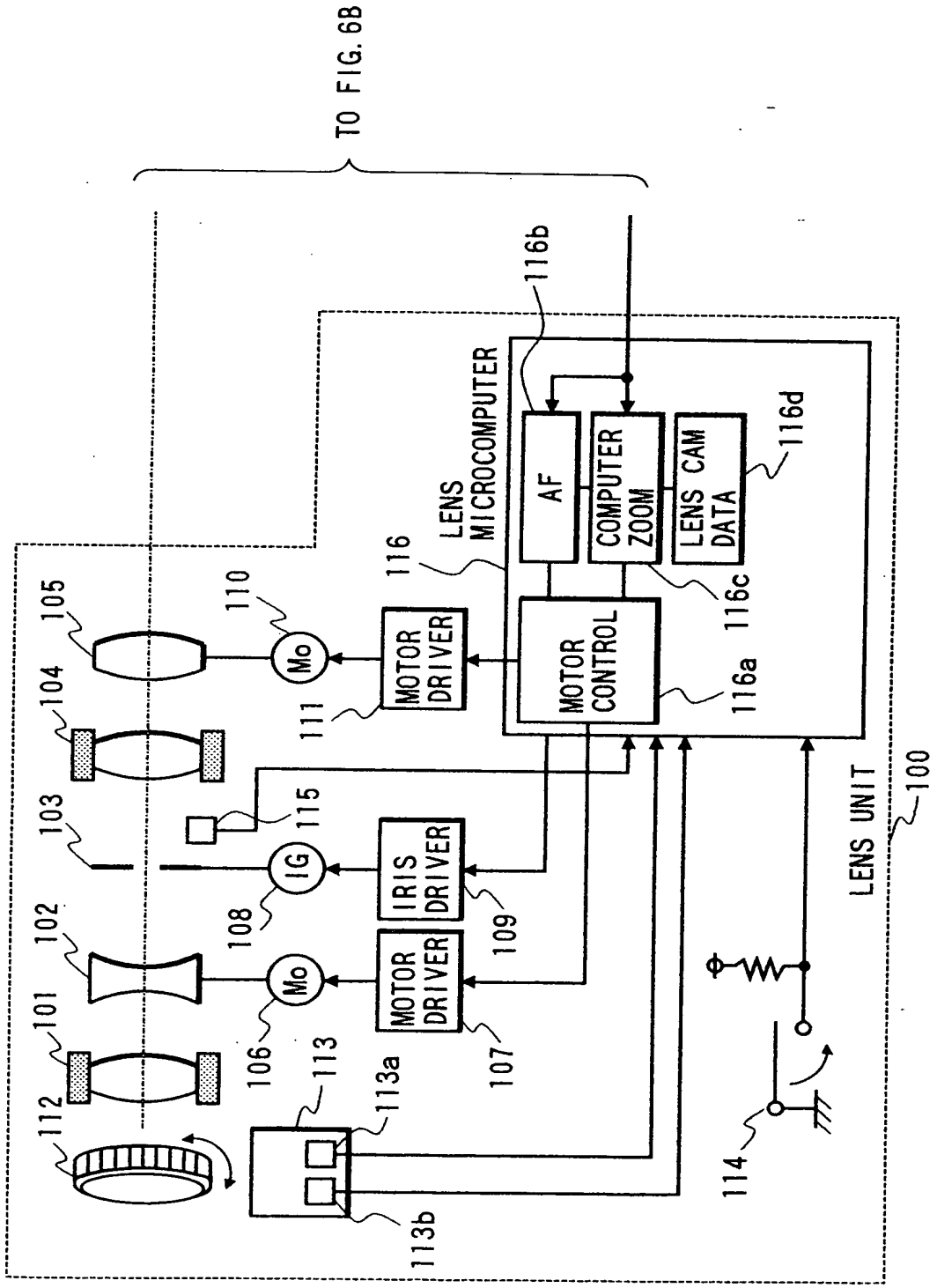

TO FIG. 6B
LENS UNIT
100
LENS MICROCOMPUTER
116
116b
AF
COMPUTER ZOOM
LENS CAM DATA
116d
116c
MOTOR CONTROL
116a
MOTOR DRIVER
111
110
Mo
105
104
103
IG
115
IRIS DRIVER
109
108
MOTOR DRIVER
107
106
Mo
102
101
112
113
113a
113b
114

FIG. 6B

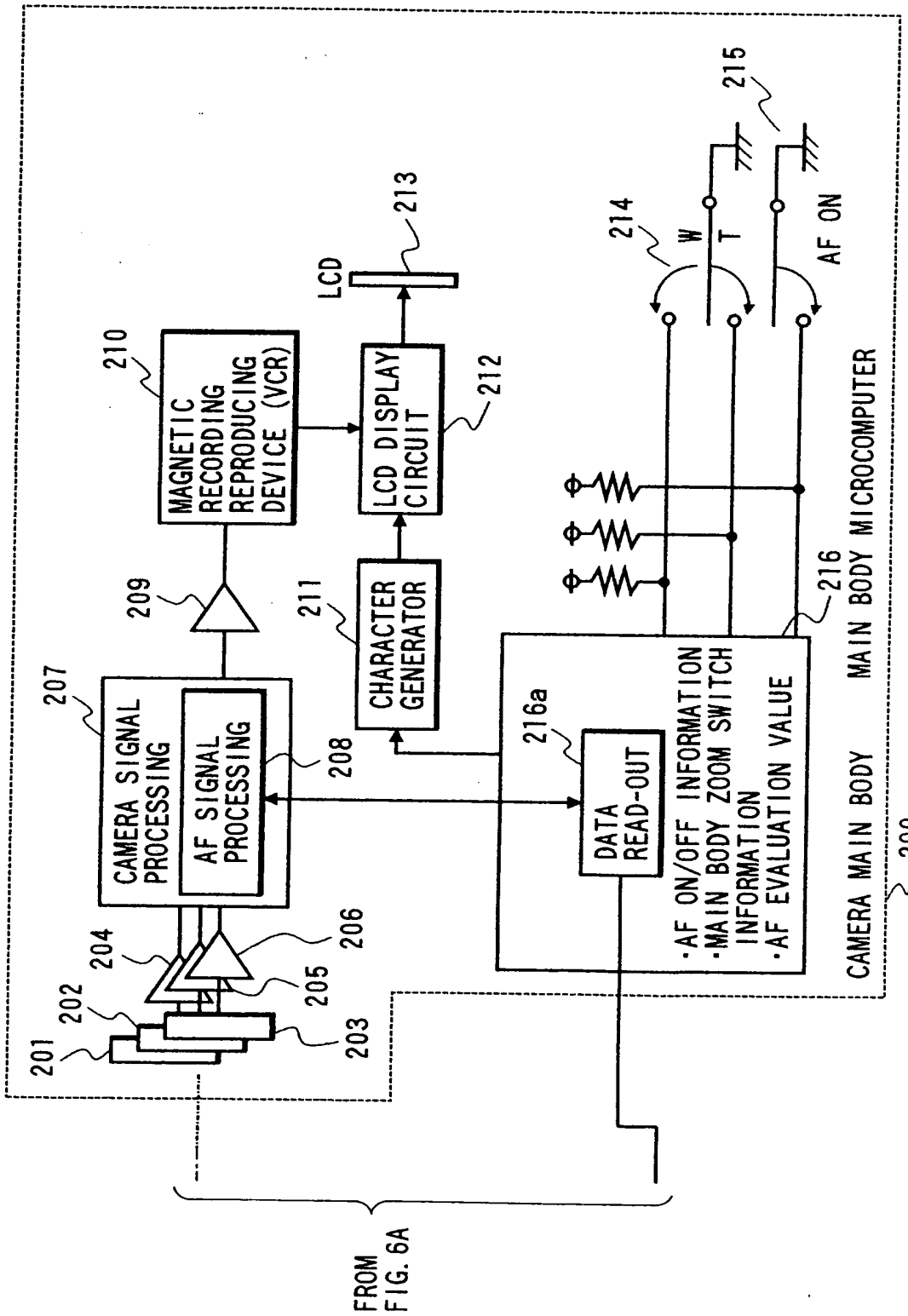

FROM FIG. 6A
201
202
203
204
205
206
207
CAMERA SIGNAL PROCESSING
AF SIGNAL PROCESSING
208
209
210
MAGNETIC RECORDING REPRODUCING DEVICE (VCR)
211
CHARACTER GENERATOR
212
LCD DISPLAY CIRCUIT
213
LCD
214
W
T
215
AF ON
216
216a
DATA READ-OUT
·AF ON/OFF INFORMATION
·MAIN BODY ZOOM SWITCH INFORMATION
·AF EVALUATION VALUE
CAMERA MAIN BODY MAIN BODY MICROCOMPUTER
200

FIG. 7

FIG. 7A

FIG. 7A	FIG. 7B

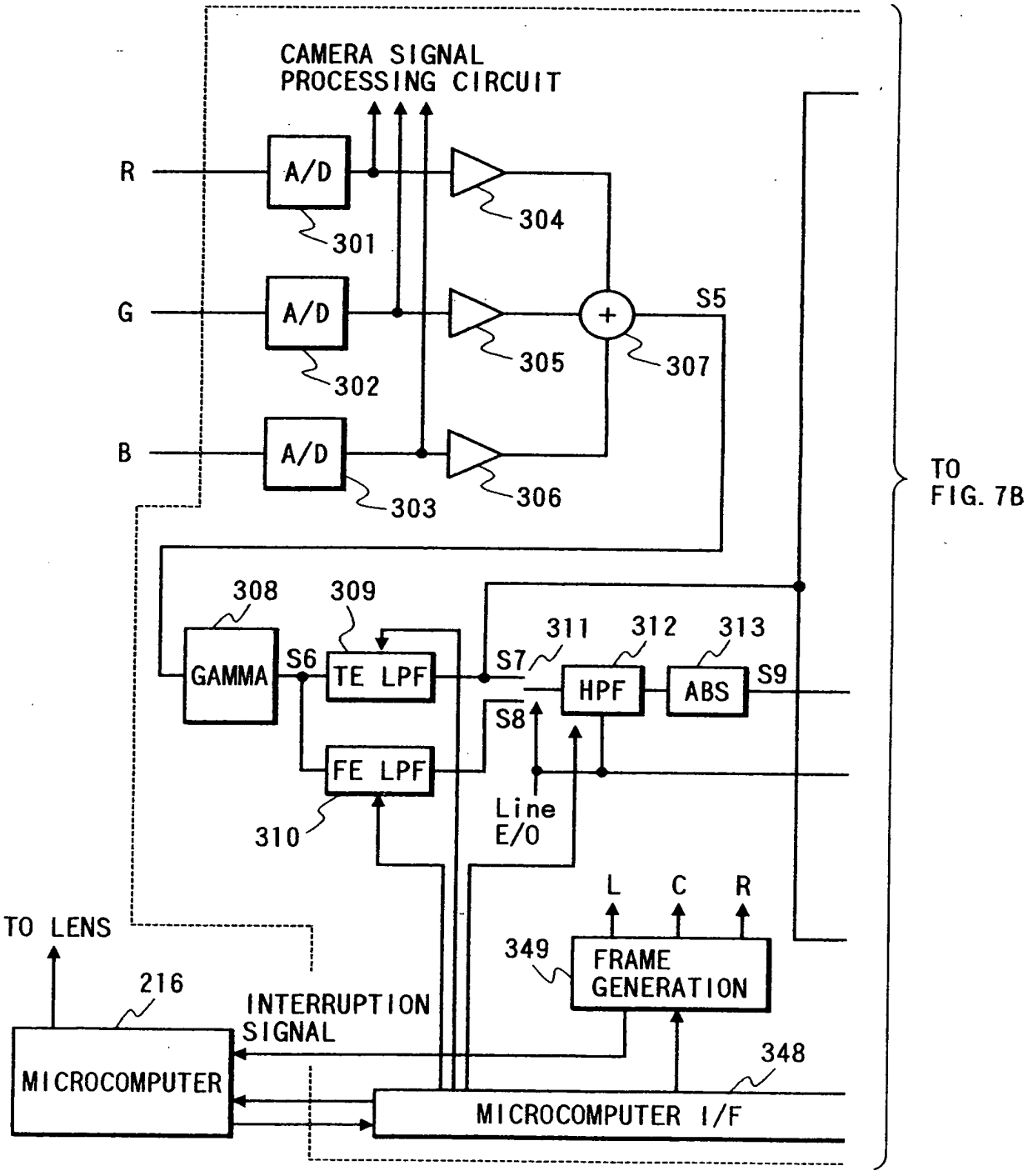


FIG. 7B

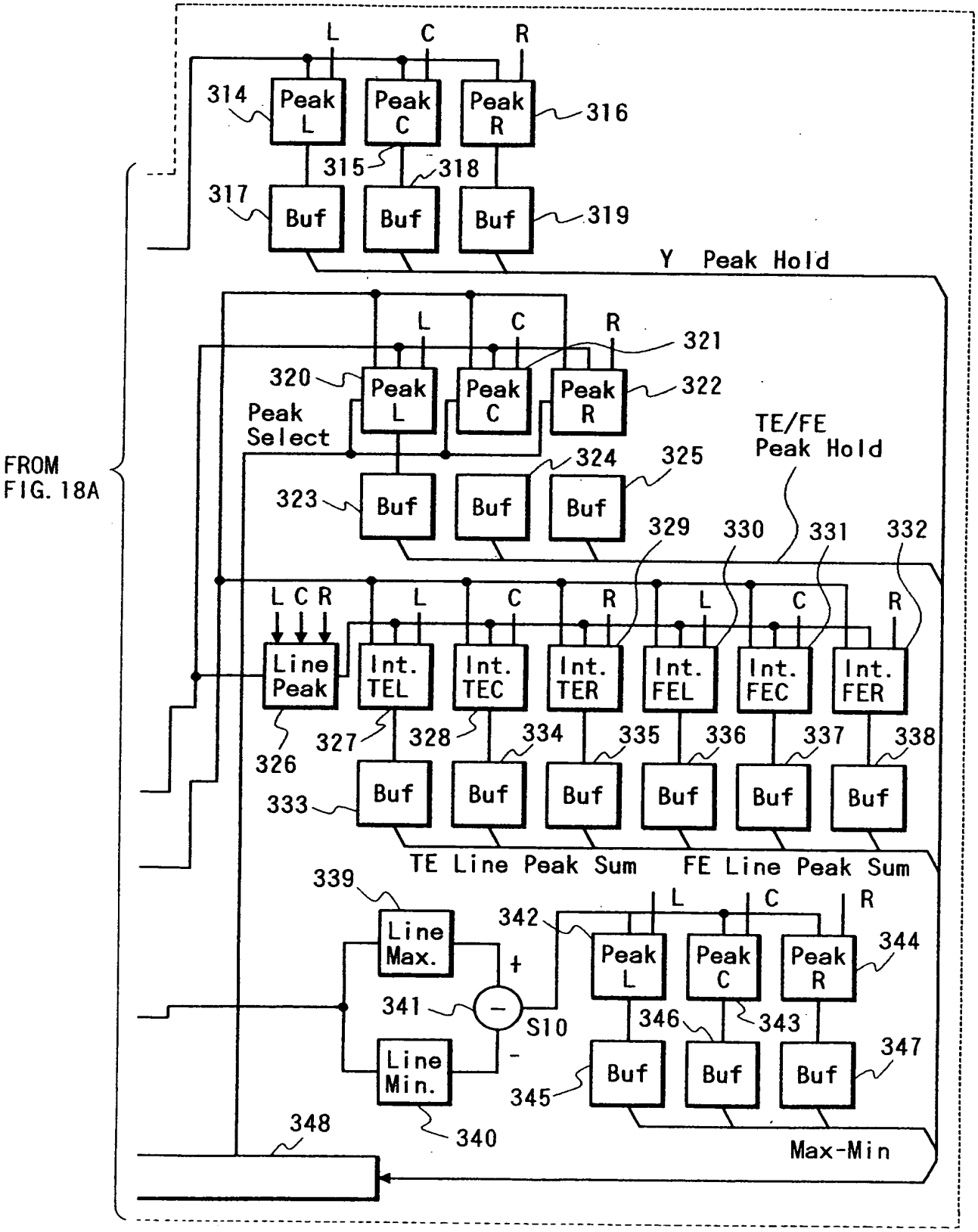
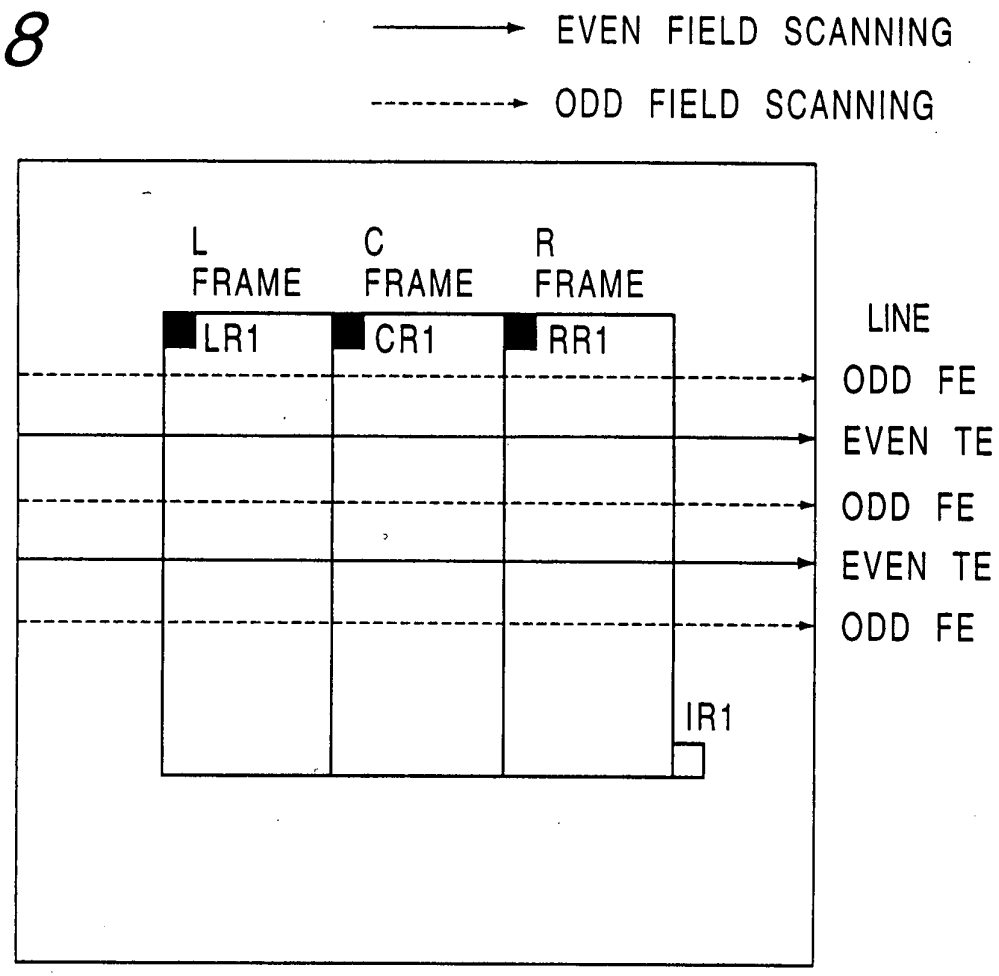

FROM FIG. 18A
L
C
R
314
Peak L
Peak C
Peak R
316
315
318
317
Buf
Buf
Buf
319
Y Peak Hold
320
321
322
Peak Select
TE/FE Peak Hold
323
324
325
329
330
331
332
Line Peak
Int. TEL
Int. TEC
Int. TER
Int. FEL
Int. FEC
Int. FER
326
327
328
334
335
336
337
338
333
TE Line Peak Sum
FE Line Peak Sum
339
Line Max.
342
344
341
S10
346
343
347
Line Min.
345
340
348
Max-Min

FIG. 8



■ RESET OF INTEGRATION CIRCUIT, PEAK-HOLD CIRCUIT

□ TRANSFER OF DATA TO BUFFER, GENERATION OF IRQ

FIG. 9

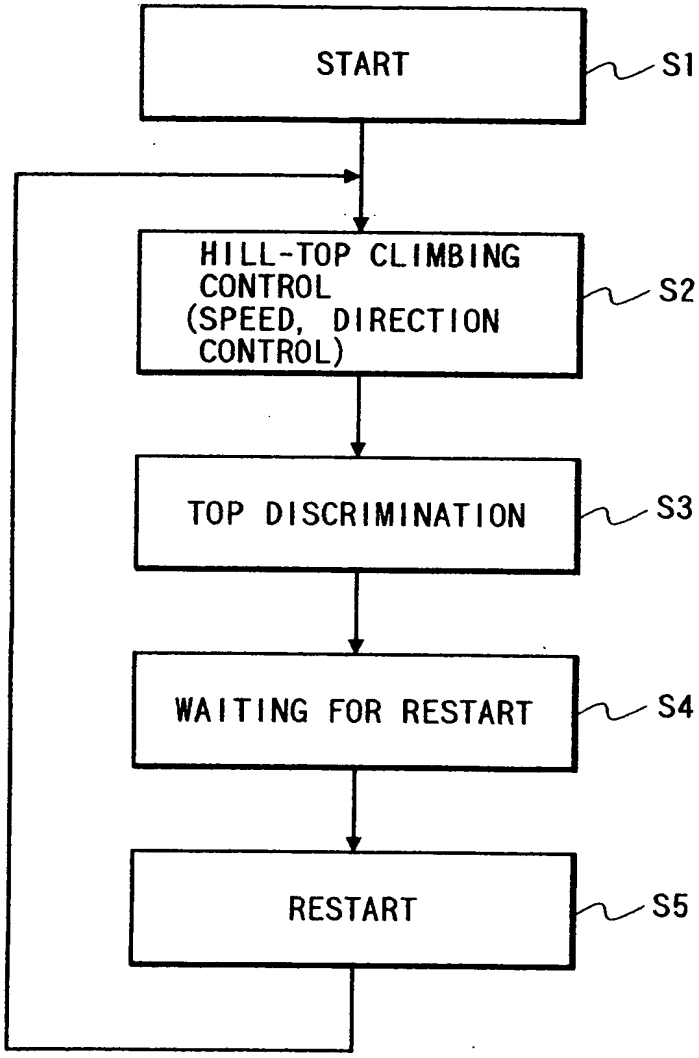

START
S1
HILL-TOP CLIMBING CONTROL (SPEED, DIRECTION CONTROL)
S2
TOP DISCRIMINATION
S3
WAITING FOR RESTART
S4
RESTART
S5

FIG. 10

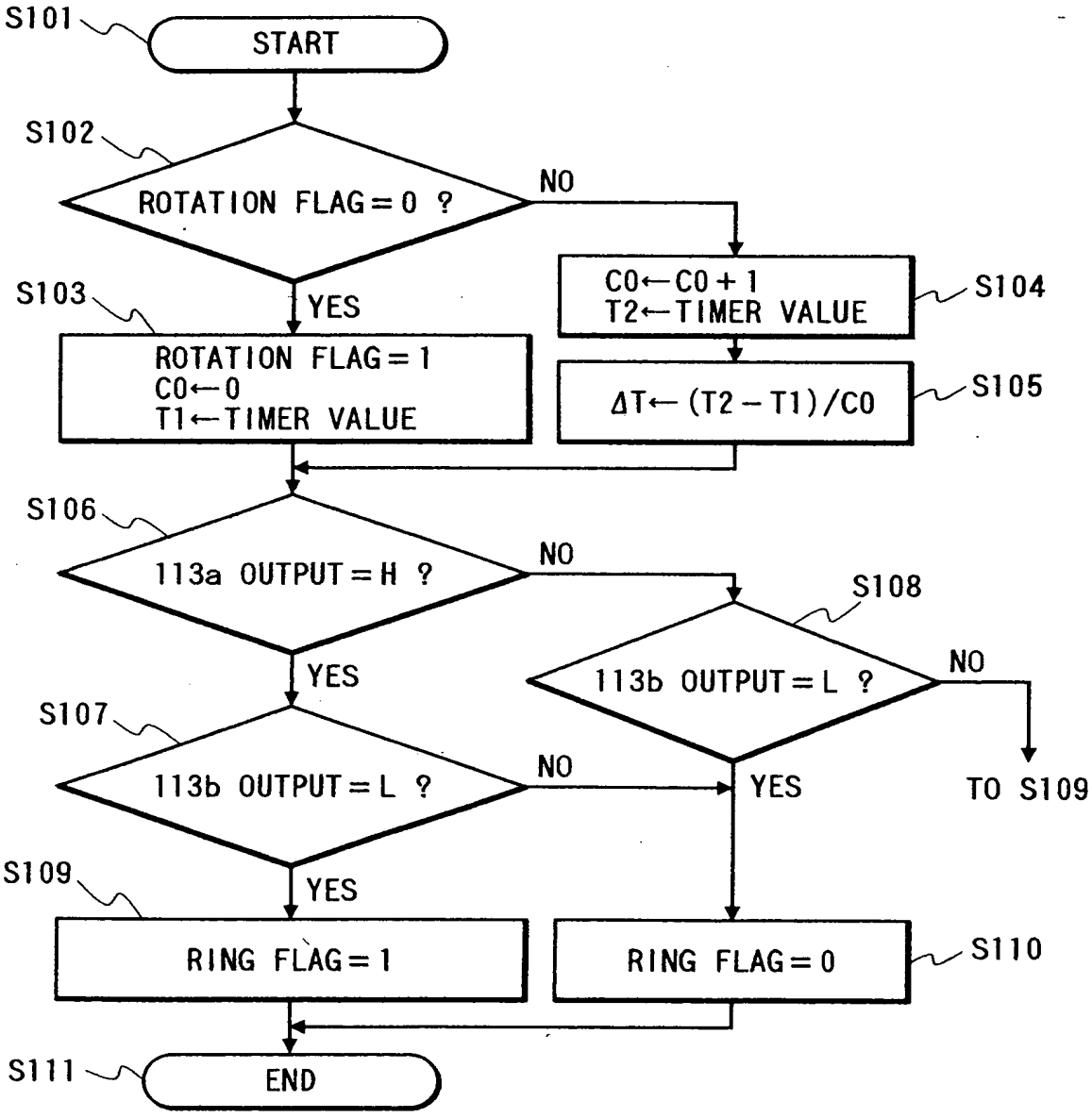

S101
START
S102
ROTATION FLAG=0 ?
NO
YES
S103
ROTATION FLAG=1
C0←0
T1←TIMER VALUE
C0←C0+1
T2←TIMER VALUE
S104
ΔT←(T2−T1)/C0
S105
S106
113a OUTPUT=H ?
NO
YES
S107
113b OUTPUT=L ?
NO
S108
113b OUTPUT=L ?
NO
YES
TO S109
S109
YES
RING FLAG=1
RING FLAG=0
S110
S111
END

FIG. 11

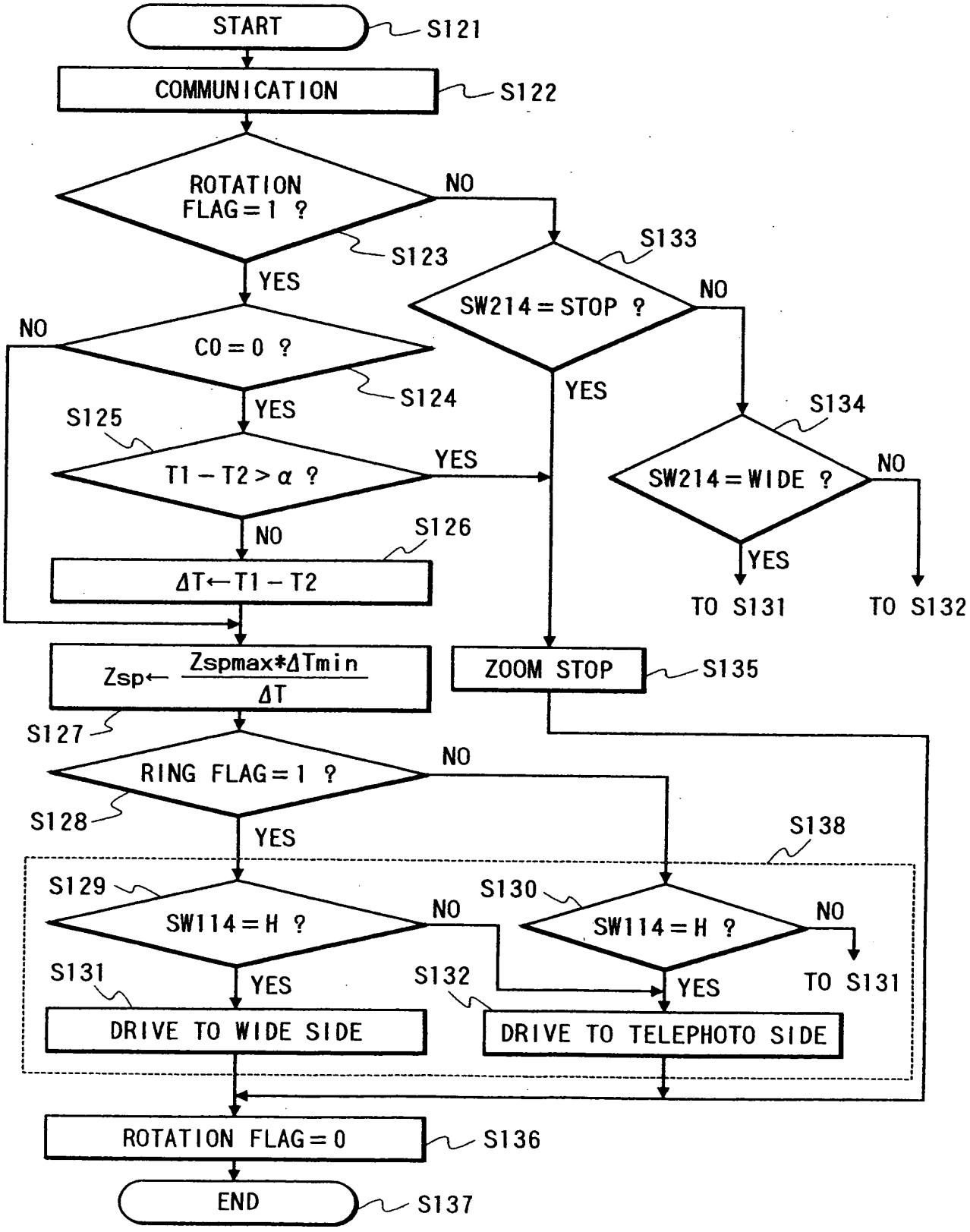

START
S121
COMMUNICATION
S122
ROTATION FLAG=1 ?
NO
S123
YES
C0=0 ?
NO
S124
YES
S125
T1−T2>α ?
YES
NO
S126
ΔT←T1−T2
Zsp← Zspmax*ΔTmin / ΔT
S127
RING FLAG=1 ?
NO
S128
YES
S133
SW214=STOP ?
NO
YES
S134
SW214=WIDE ?
NO
YES
TO S131
TO S132
ZOOM STOP
S135
S138
S129
SW114=H ?
NO
S131
YES
DRIVE TO WIDE SIDE
S130
SW114=H ?
NO
TO S131
S132
YES
DRIVE TO TELEPHOTO SIDE
ROTATION FLAG=0
S136
END
S137

FIG. 12

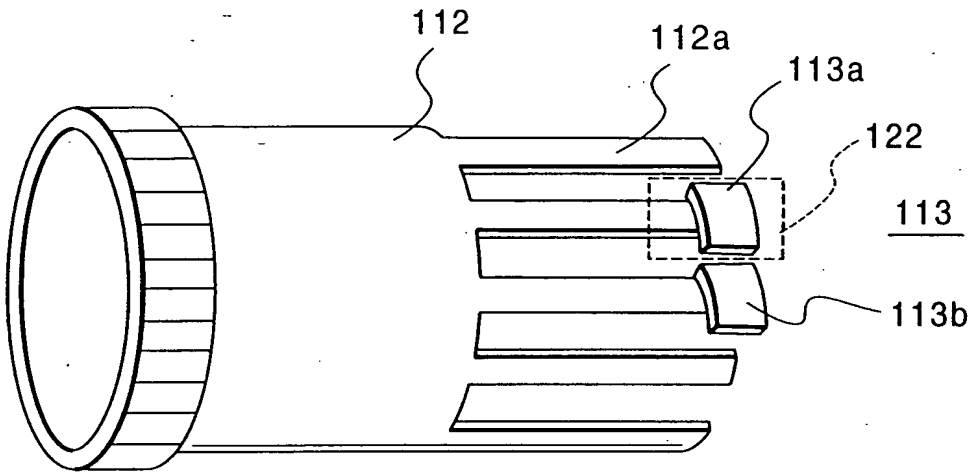
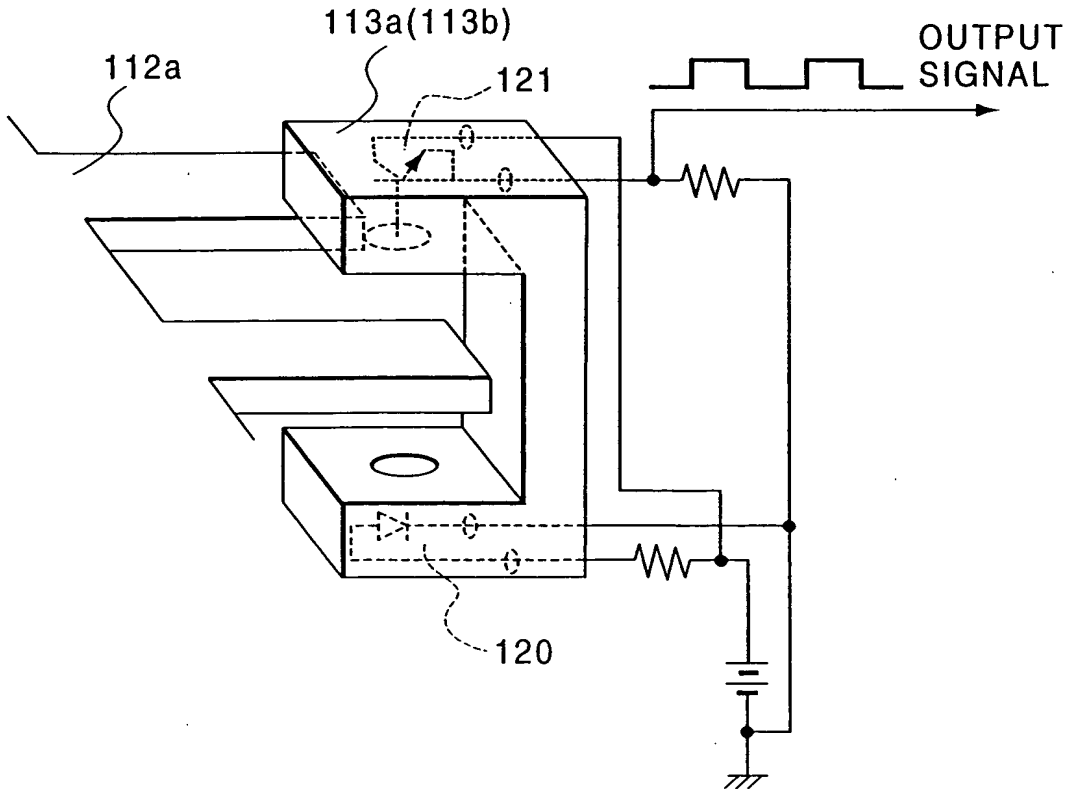

112
112a
113a
122
113
113b

FIG. 13


113a(113b)
112a
121
OUTPUT
SIGNAL
120

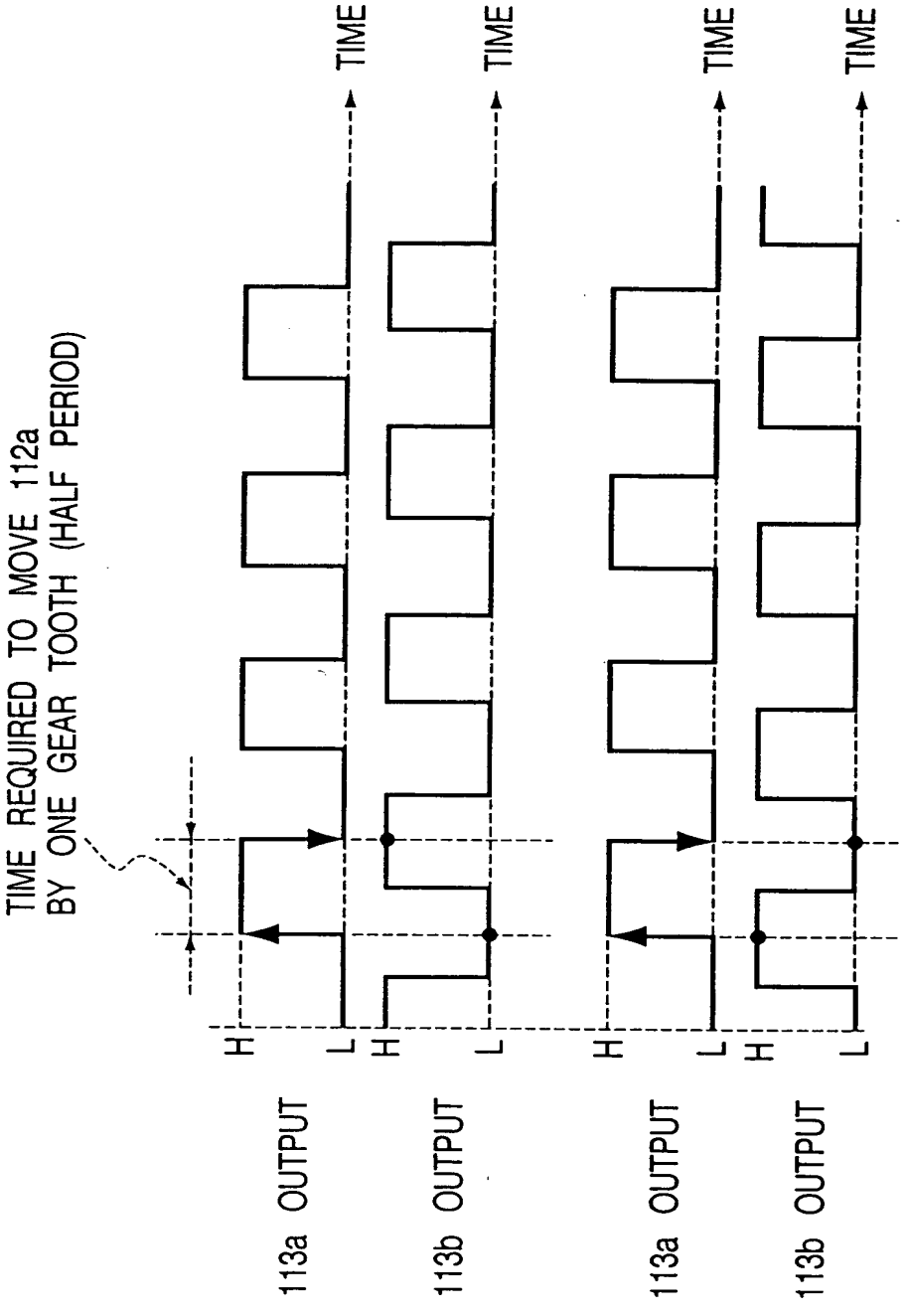


FIG. 14A

FIG. 14B

FIG. 15

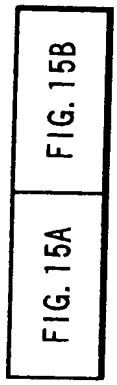


FIG. 15A

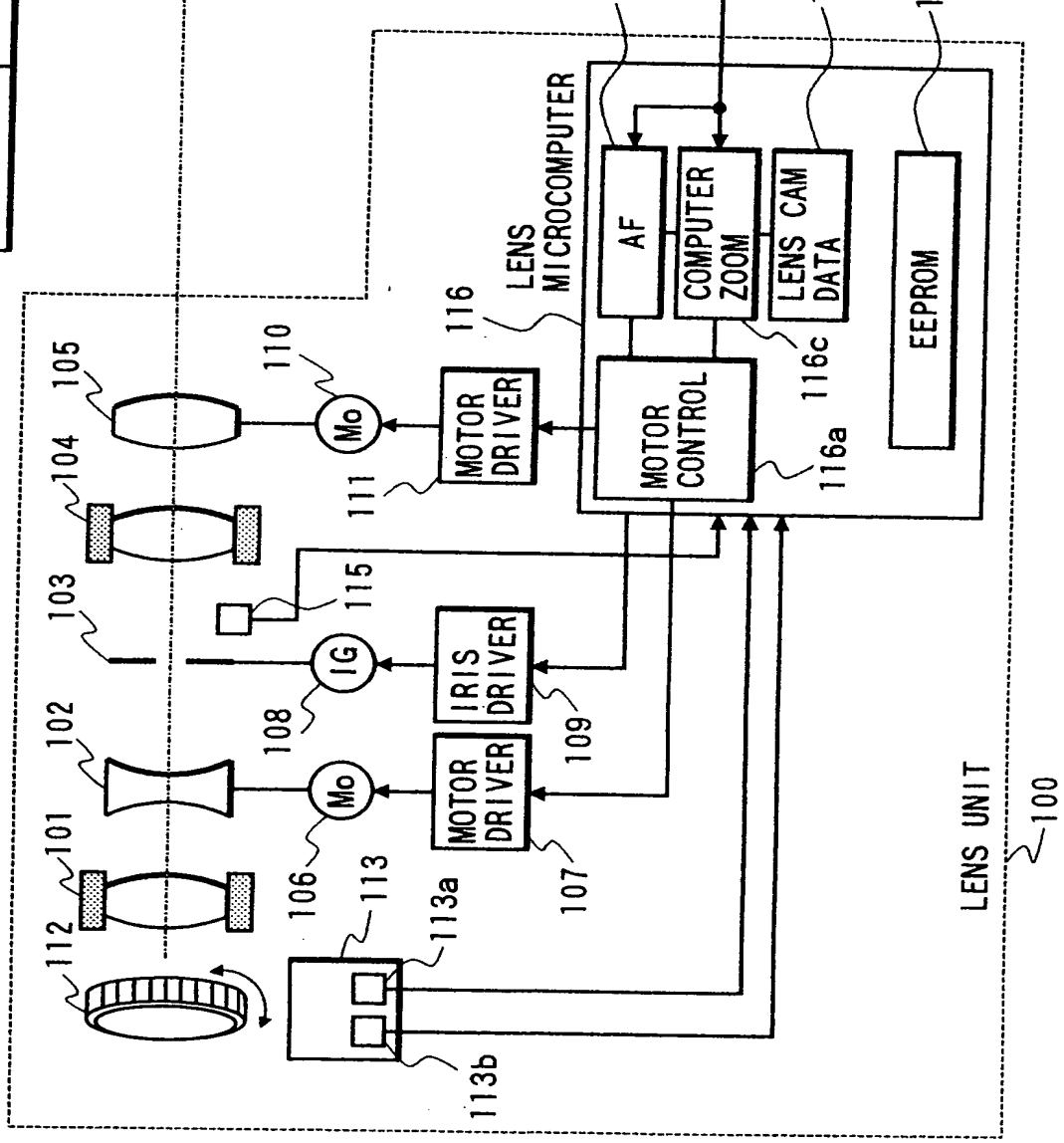


FIG. 15B

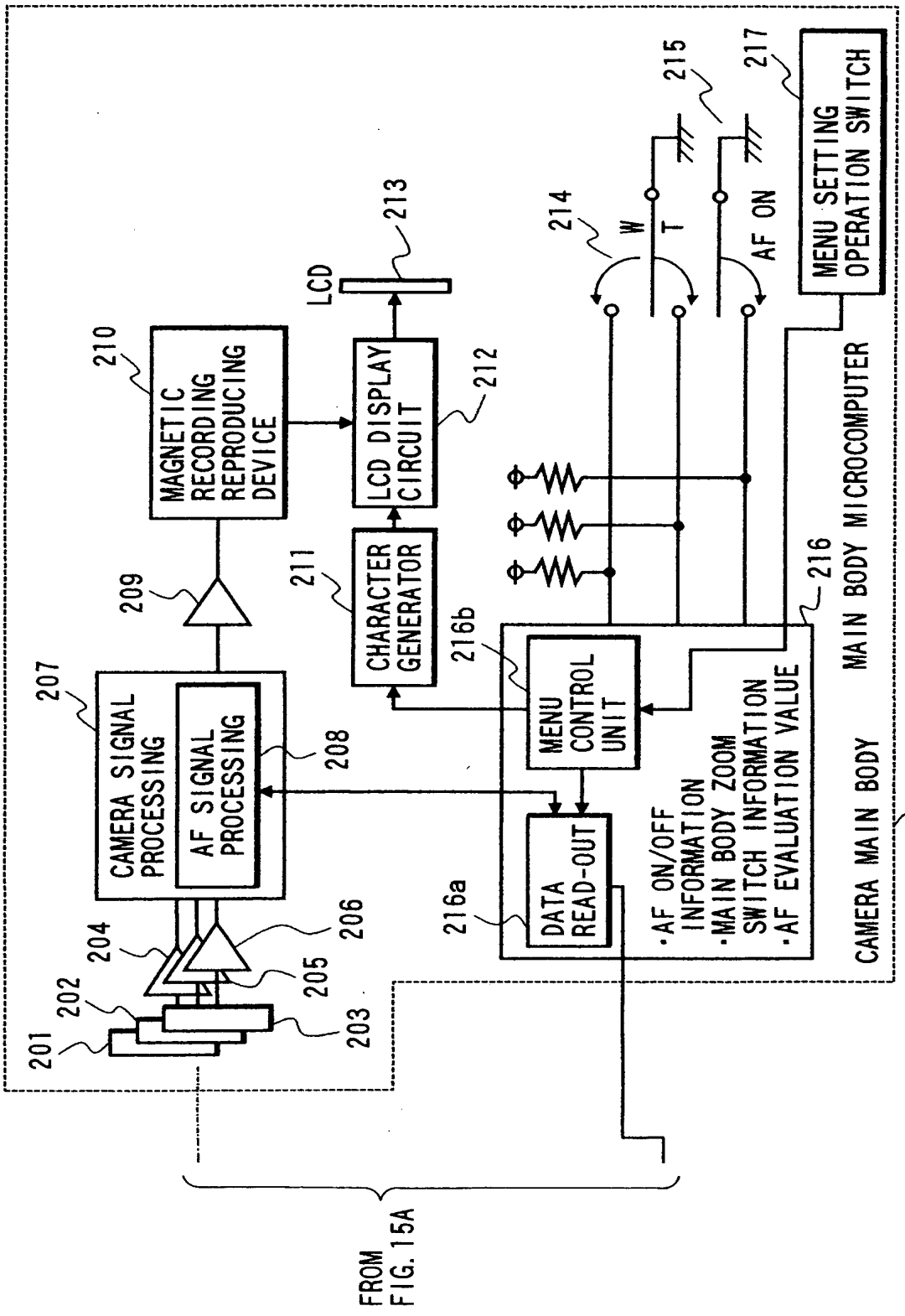

FROM FIG. 15A
201
202
203
204
205
206
207
CAMERA SIGNAL PROCESSING
AF SIGNAL PROCESSING
208
209
210
MAGNETIC RECORDING REPRODUCING DEVICE
211
CHARACTER GENERATOR
212
LCD DISPLAY CIRCUIT
213
LCD
214
W
T
AF ON
215
217
MENU SETTING OPERATION SWITCH
216
MAIN BODY MICROCOMPUTER
216a
DATA READ-OUT
216b
MENU CONTROL UNIT
·AF ON/OFF INFORMATION
·MAIN BODY ZOOM SWITCH INFORMATION
·AF EVALUATION VALUE
CAMERA MAIN BODY
200

FIG. 16

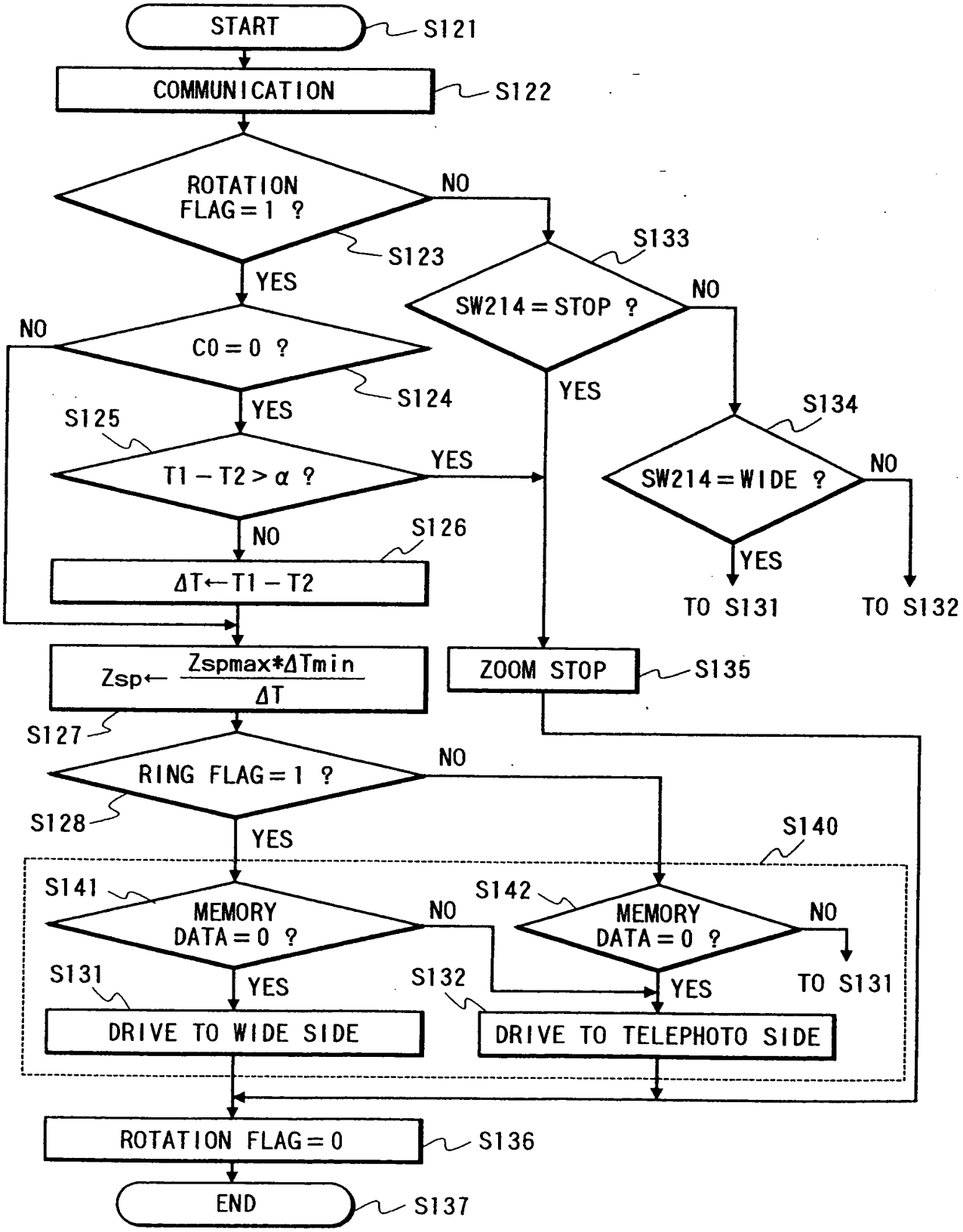

START
S121
COMMUNICATION
S122
ROTATION FLAG=1 ?
S123
NO
YES
C0=0 ?
S124
NO
YES
S125
T1−T2>α ?
YES
NO
S126
ΔT←T1−T2
Zsp← Zspmax*ΔTmin / ΔT
S127
RING FLAG=1 ?
S128
NO
YES
S133
SW214=STOP ?
NO
YES
S134
SW214=WIDE ?
NO
YES
TO S131
TO S132
ZOOM STOP
S135
S140
S141
MEMORY DATA=0 ?
NO
YES
S131
DRIVE TO WIDE SIDE
S142
MEMORY DATA=0 ?
NO
YES
TO S131
S132
DRIVE TO TELEPHOTO SIDE
ROTATION FLAG=0
S136
END
S137

FIG. 17

FIG. 17A	FIG. 17B

FIG. 17A

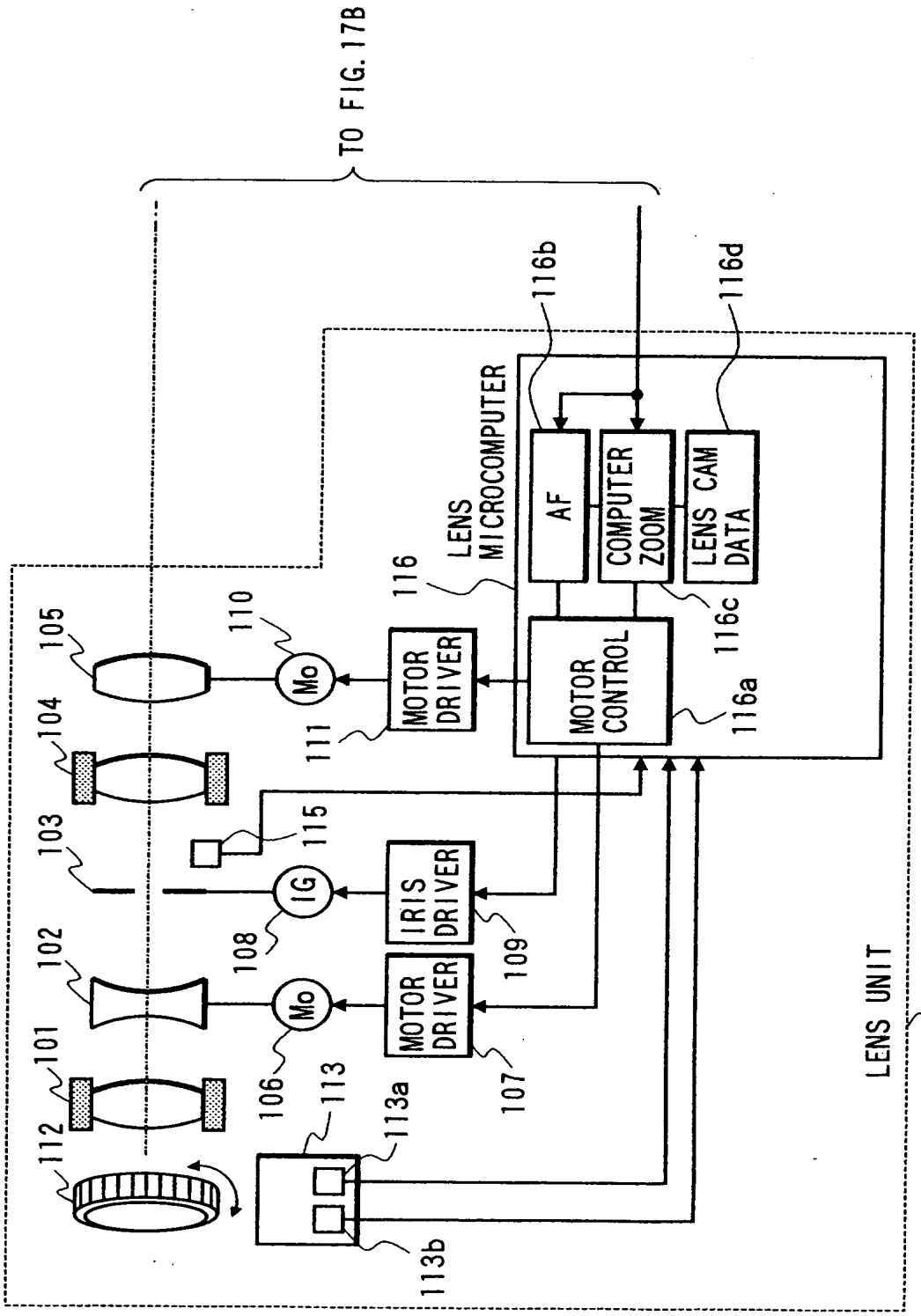


FIG. 17B

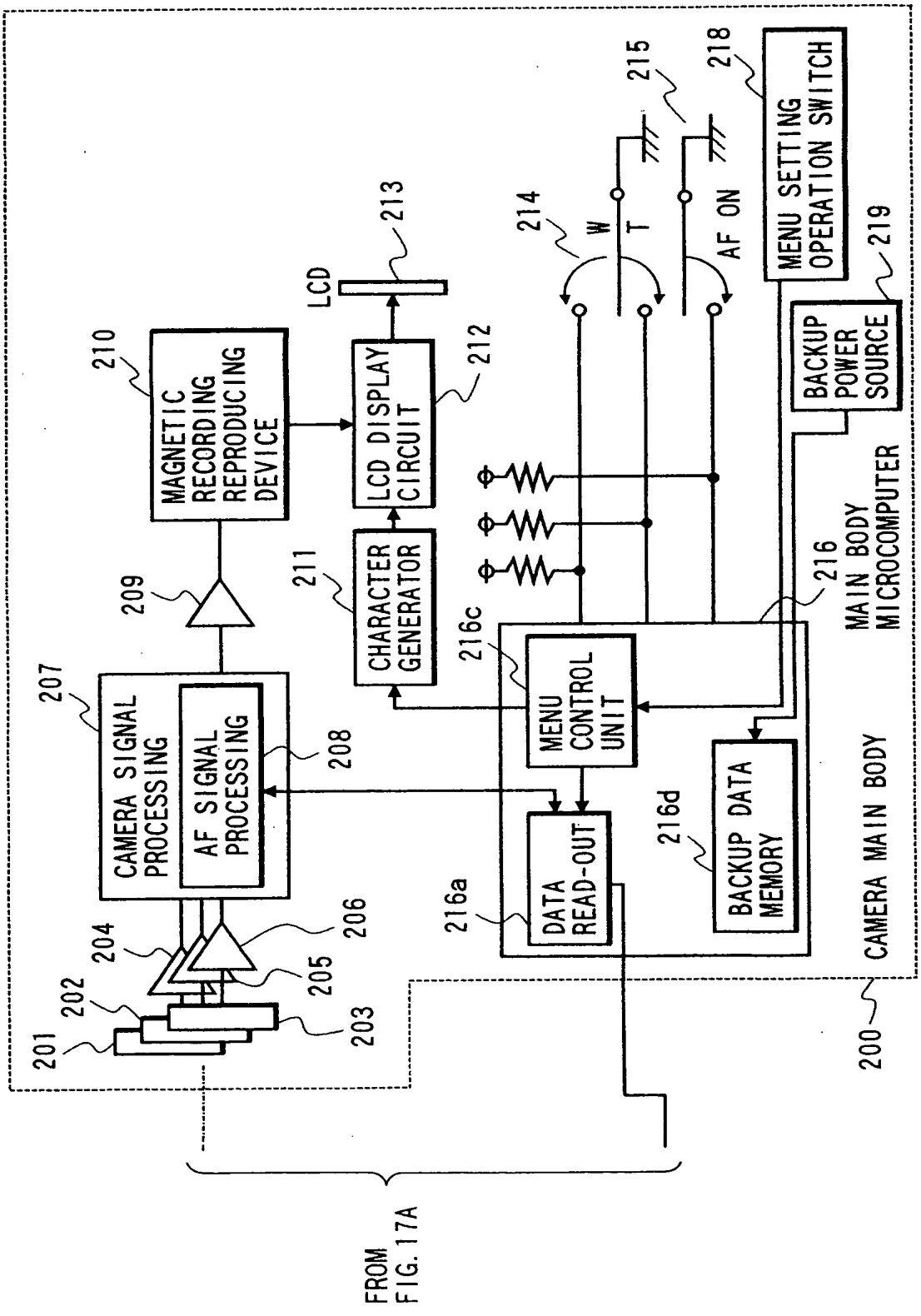

FROM FIG. 17A
201
202
203
204
205
206
207
CAMERA SIGNAL PROCESSING
AF SIGNAL PROCESSING
208
209
210
MAGNETIC RECORDING REPRODUCING DEVICE
211
CHARACTER GENERATOR
212
LCD DISPLAY CIRCUIT
213
LCD
214
W
T
AF ON
215
216
MAIN BODY MICROCOMPUTER
216a
DATA READ-OUT
216c
MENU CONTROL UNIT
216d
BACKUP DATA MEMORY
218
MENU SETTING OPERATION SWITCH
219
BACKUP POWER SOURCE
CAMERA MAIN BODY
200

FIG. 18

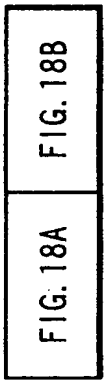


FIG. 18A

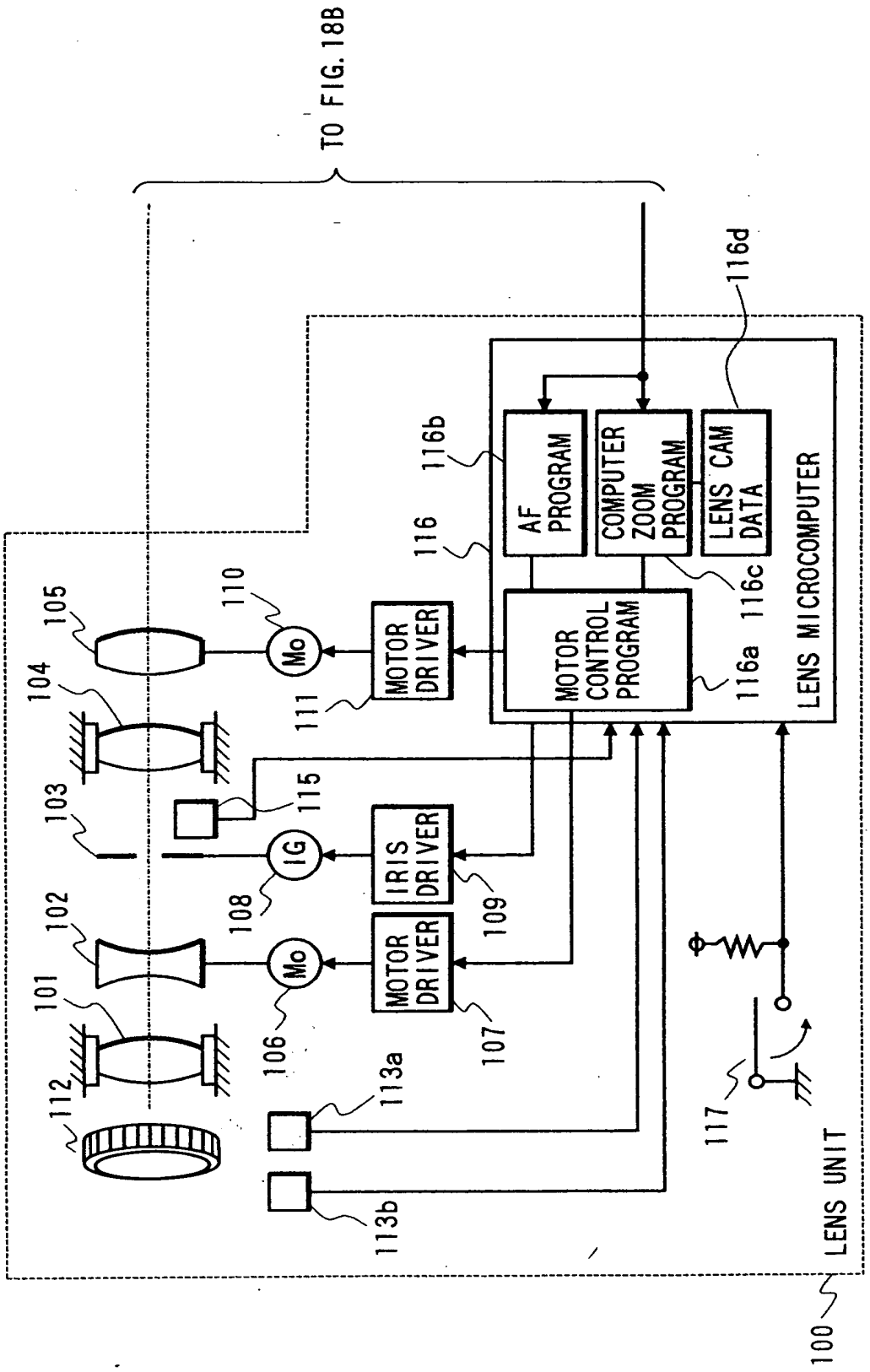


FIG. 18B

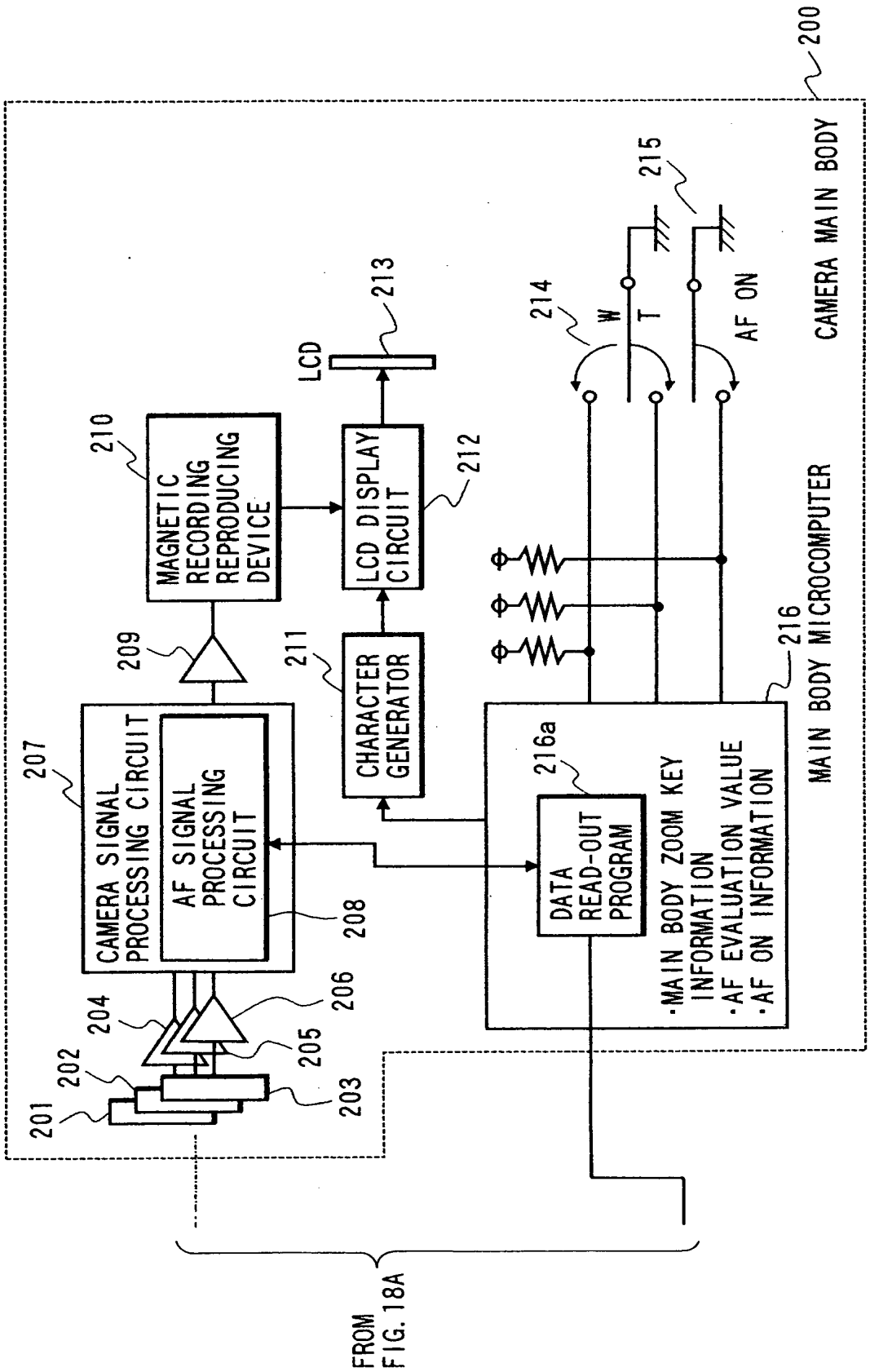

200
CAMERA MAIN BODY
MAIN BODY MICROCOMPUTER
216
215
214
W
T
AF ON
213
LCD
210
MAGNETIC RECORDING REPRODUCING DEVICE
212
LCD DISPLAY CIRCUIT
211
CHARACTER GENERATOR
209
207
CAMERA SIGNAL PROCESSING CIRCUIT
AF SIGNAL PROCESSING CIRCUIT
208
206
204
205
202
203
201
216a
DATA READ-OUT PROGRAM
·MAIN BODY ZOOM KEY INFORMATION
·AF EVALUATION VALUE
·AF ON INFORMATION
FROM FIG. 18A

FIG. 19

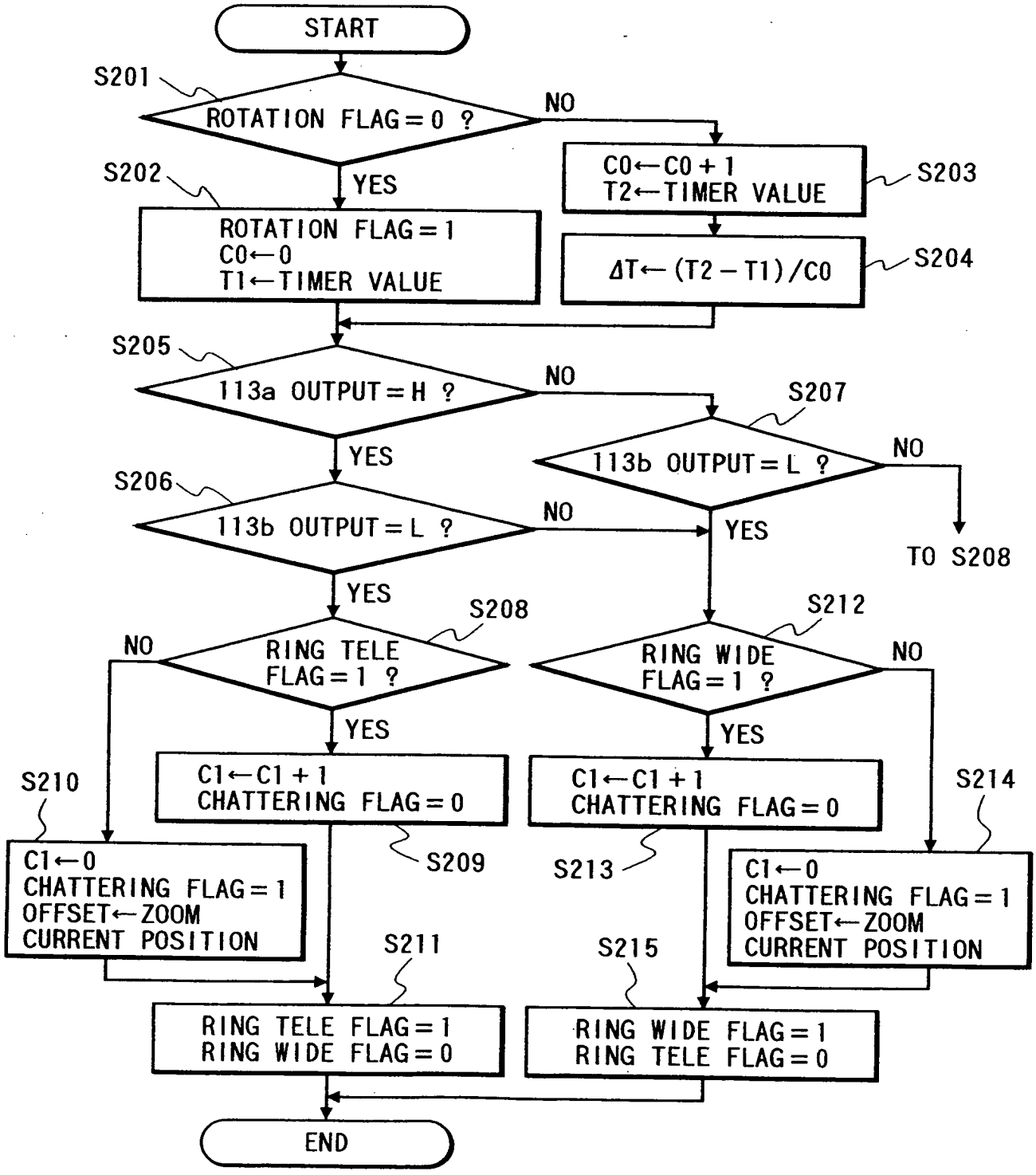

START
S201
ROTATION FLAG=0 ?
NO
YES
S202
ROTATION FLAG=1
C0←0
T1←TIMER VALUE
C0←C0+1
T2←TIMER VALUE
S203
ΔT←(T2−T1)/C0
S204
S205
113a OUTPUT=H ?
NO
YES
S206
113b OUTPUT=L ?
NO
YES
S207
113b OUTPUT=L ?
NO
YES
TO S208
S208
RING TELE FLAG=1 ?
NO
YES
S212
RING WIDE FLAG=1 ?
NO
YES
S210
C1←0
CHATTERING FLAG=1
OFFSET←ZOOM CURRENT POSITION
C1←C1+1
CHATTERING FLAG=0
S209
C1←C1+1
CHATTERING FLAG=0
S213
S214
C1←0
CHATTERING FLAG=1
OFFSET←ZOOM CURRENT POSITION
S211
RING TELE FLAG=1
RING WIDE FLAG=0
S215
RING WIDE FLAG=1
RING TELE FLAG=0
END

FIG. 20

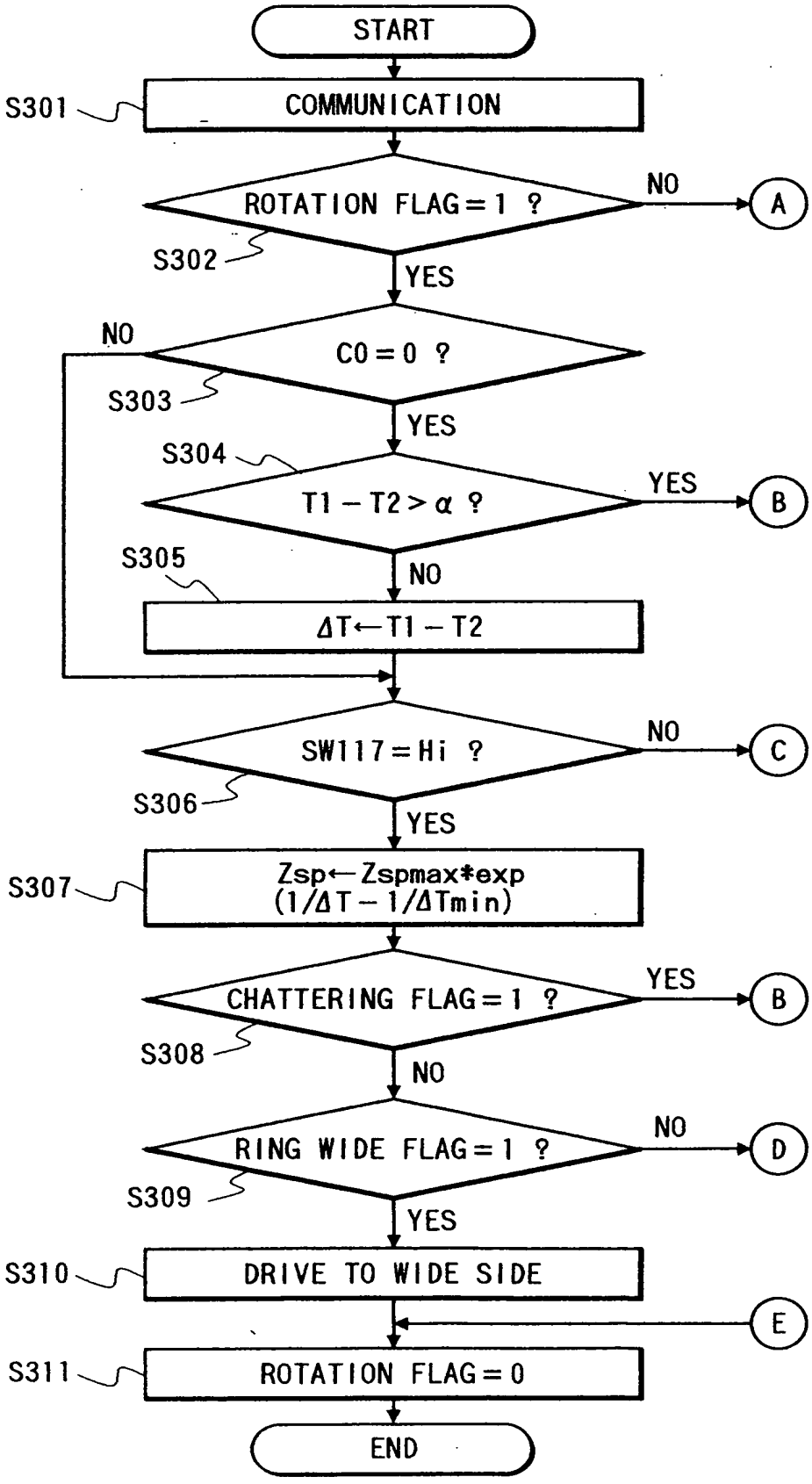

START
S301
COMMUNICATION
ROTATION FLAG=1 ?
NO
A
S302
YES
NO
C0=0 ?
S303
YES
S304
T1−T2>α ?
YES
B
S305
NO
ΔT←T1−T2
SW117=Hi ?
NO
C
S306
YES
S307
Zsp←Zspmax*exp
(1/ΔT−1/ΔTmin)
CHATTERING FLAG=1 ?
YES
B
S308
NO
RING WIDE FLAG=1 ?
NO
D
S309
YES
S310
DRIVE TO WIDE SIDE
E
S311
ROTATION FLAG=0
END

FIG. 21

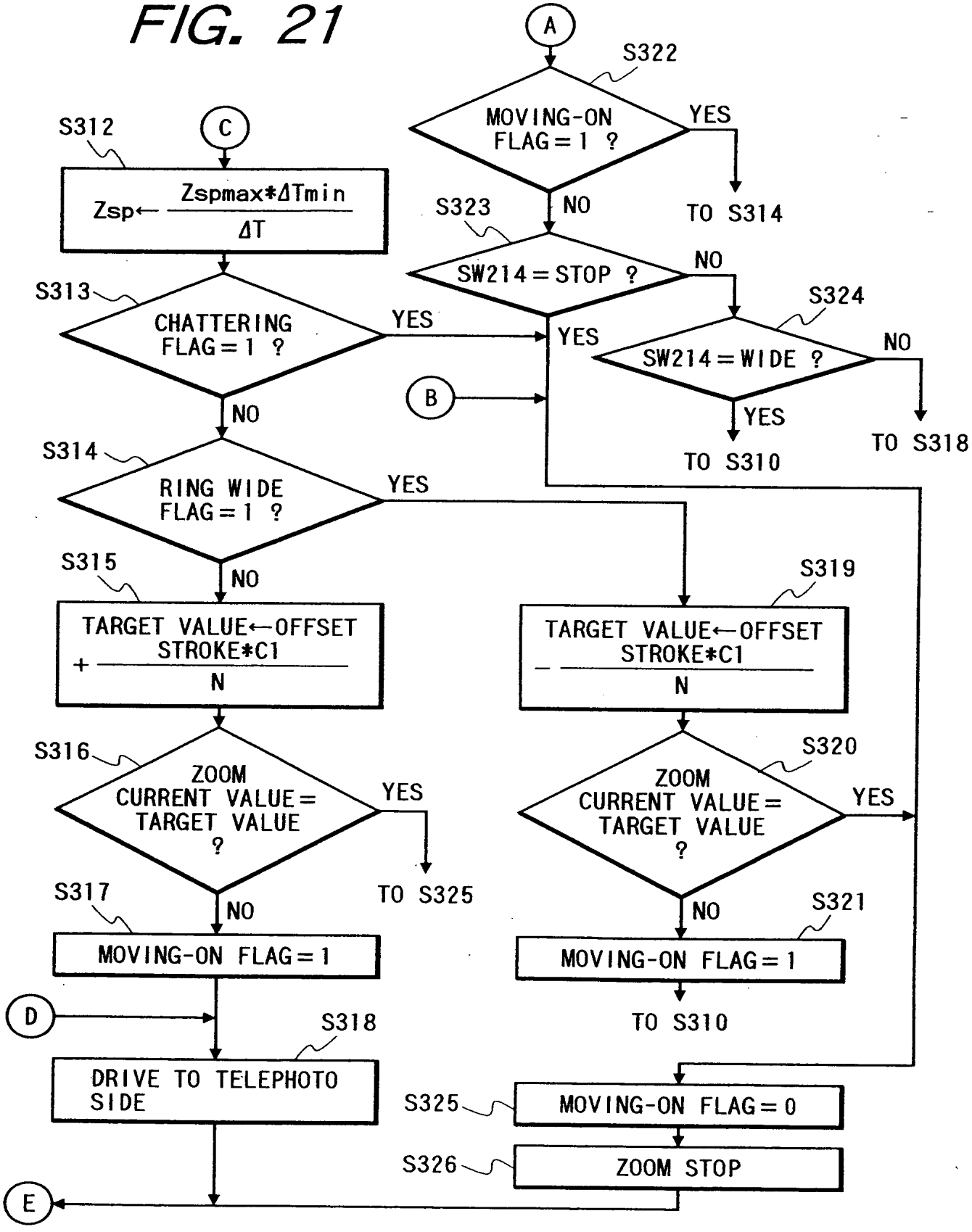

A
S322
MOVING-ON FLAG=1 ?
YES
TO S314
NO
S323
SW214=STOP ?
NO
S324
SW214=WIDE ?
NO
TO S318
YES
TO S310
YES
B
C
S312
Zsp← Zspmax*ΔTmin / ΔT
S313
CHATTERING FLAG=1 ?
YES
NO
S314
RING WIDE FLAG=1 ?
YES
NO
S315
TARGET VALUE←OFFSET + STROKE*C1 / N
S316
ZOOM CURRENT VALUE= TARGET VALUE ?
YES
TO S325
NO
S317
MOVING-ON FLAG=1
D
S318
DRIVE TO TELEPHOTO SIDE
E
S319
TARGET VALUE←OFFSET − STROKE*C1 / N
S320
ZOOM CURRENT VALUE= TARGET VALUE ?
YES
NO
S321
MOVING-ON FLAG=1
TO S310
S325
MOVING-ON FLAG=0
S326
ZOOM STOP

FIG. 22

FIG. 22A	FIG. 22B

FIG. 22A

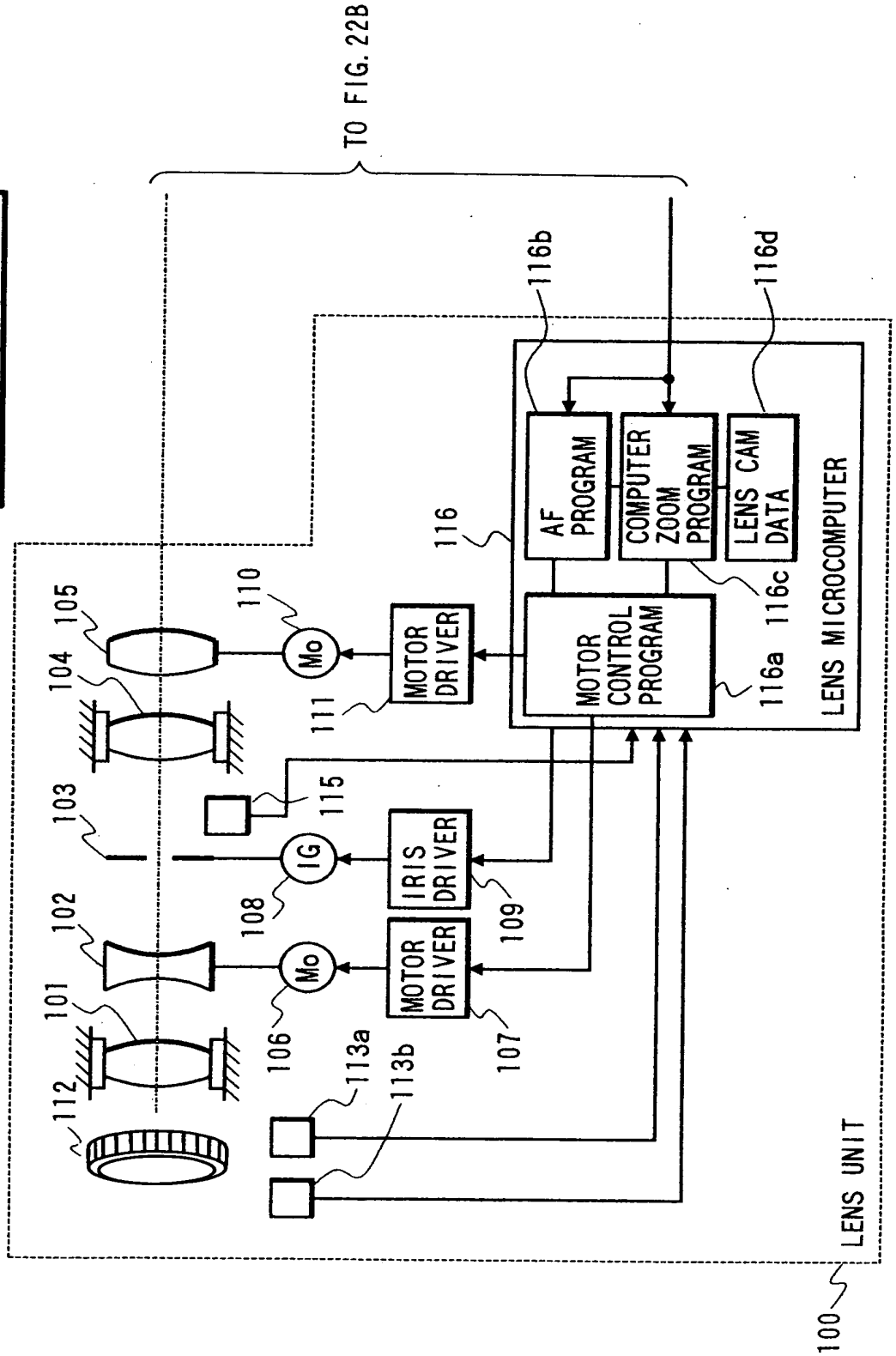


FIG. 22B

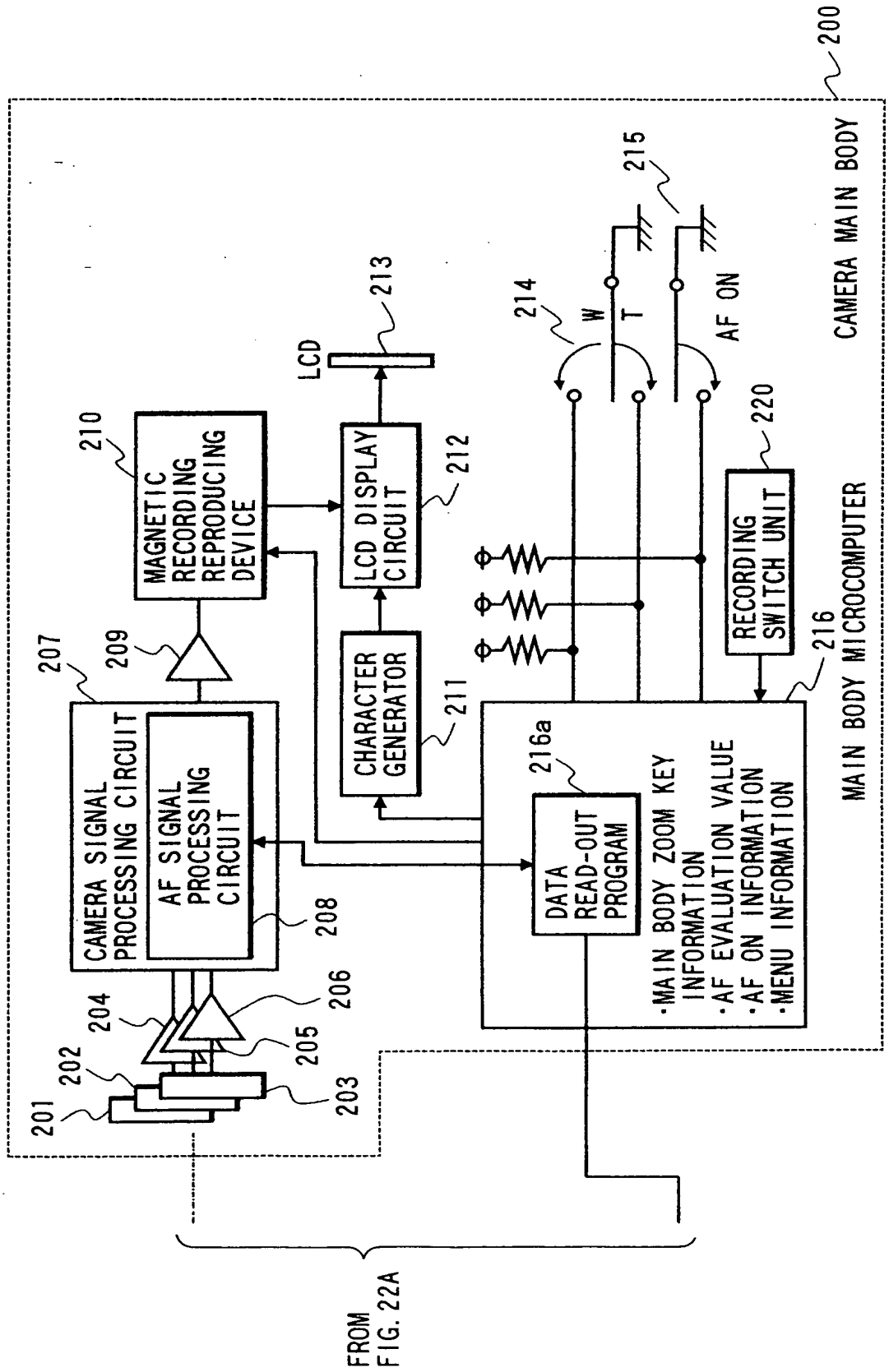

200
CAMERA MAIN BODY
MAIN BODY MICROCOMPUTER
215
214
W
T
AF ON
LCD
213
210
MAGNETIC RECORDING REPRODUCING DEVICE
LCD DISPLAY CIRCUIT
212
220
RECORDING SWITCH UNIT
216
207
209
CAMERA SIGNAL PROCESSING CIRCUIT
AF SIGNAL PROCESSING CIRCUIT
208
CHARACTER GENERATOR
211
216a
DATA READ-OUT PROGRAM
·MAIN BODY ZOOM KEY INFORMATION
·AF EVALUATION VALUE
·AF ON INFORMATION
·MENU INFORMATION
204
206
205
202
201
203
FROM FIG. 22A

FIG. 23

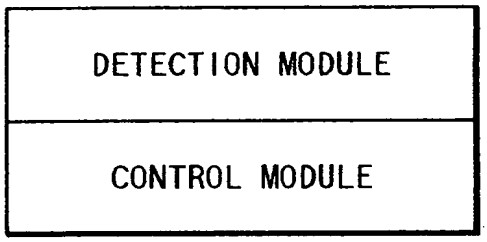


FIG. 24A

FIG. 24

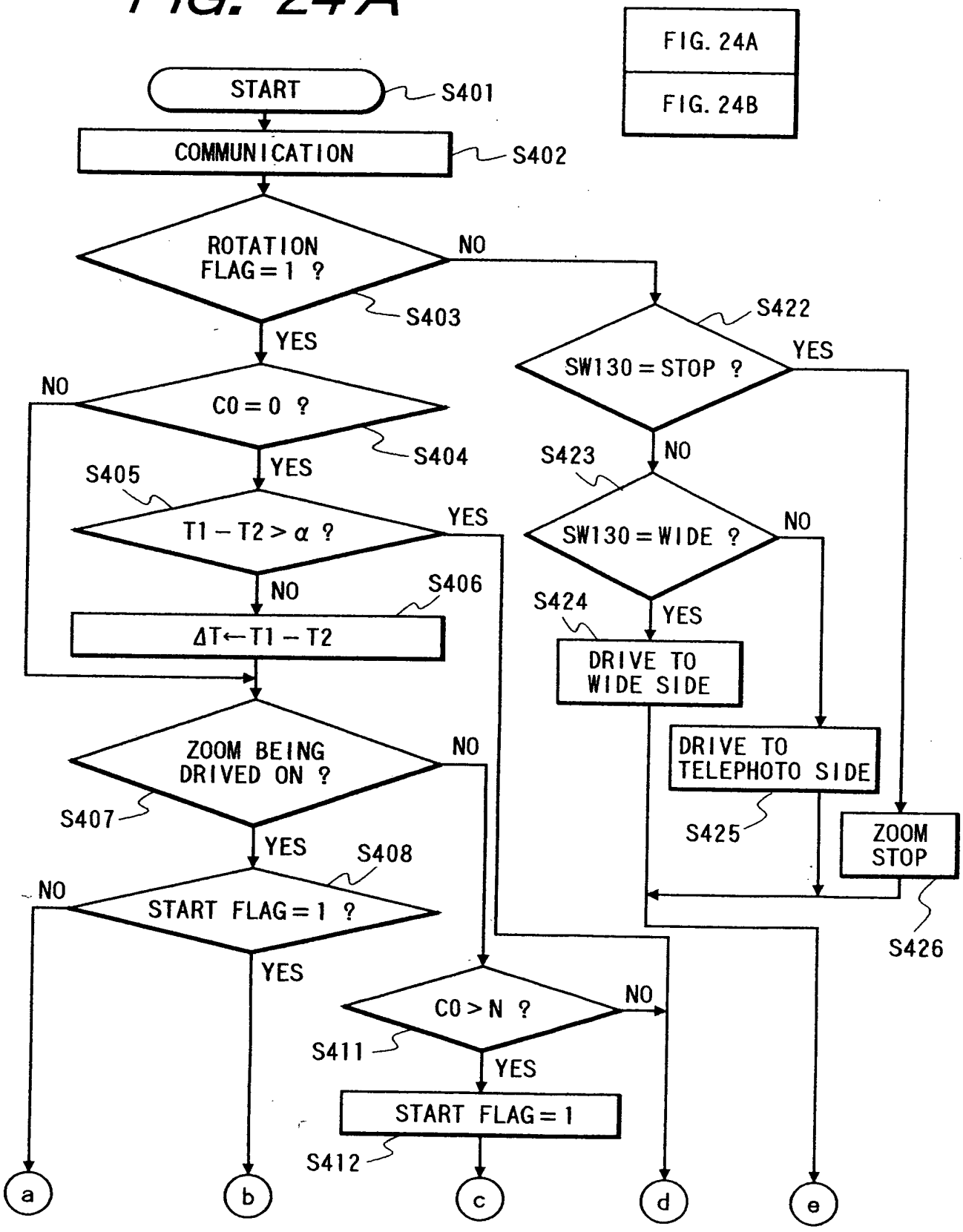


FIG. 24B

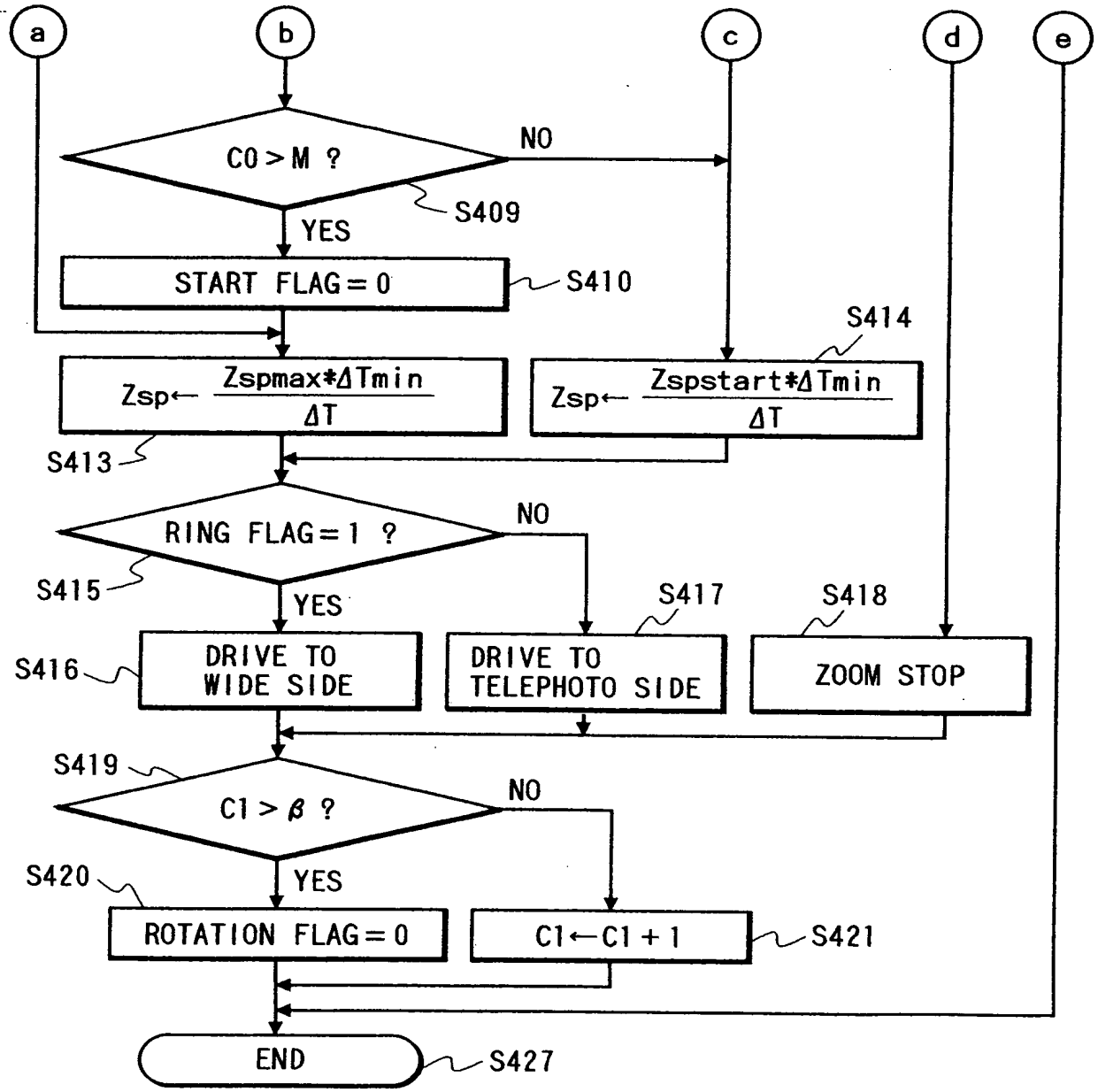

a
b
c
d
e
C0 > M ?
NO
S409
YES
START FLAG = 0
S410
S414
Zsp← Zspmax*ΔTmin / ΔT
Zsp← Zspstart*ΔTmin / ΔT
S413
RING FLAG = 1 ?
NO
S415
YES
S417
S418
S416
DRIVE TO WIDE SIDE
DRIVE TO TELEPHOTO SIDE
ZOOM STOP
S419
C1 > β ?
NO
S420
YES
ROTATION FLAG = 0
C1←C1 + 1
S421
END
S427

FIG. 25

FIG. 25A	FIG. 25B

FIG. 25A

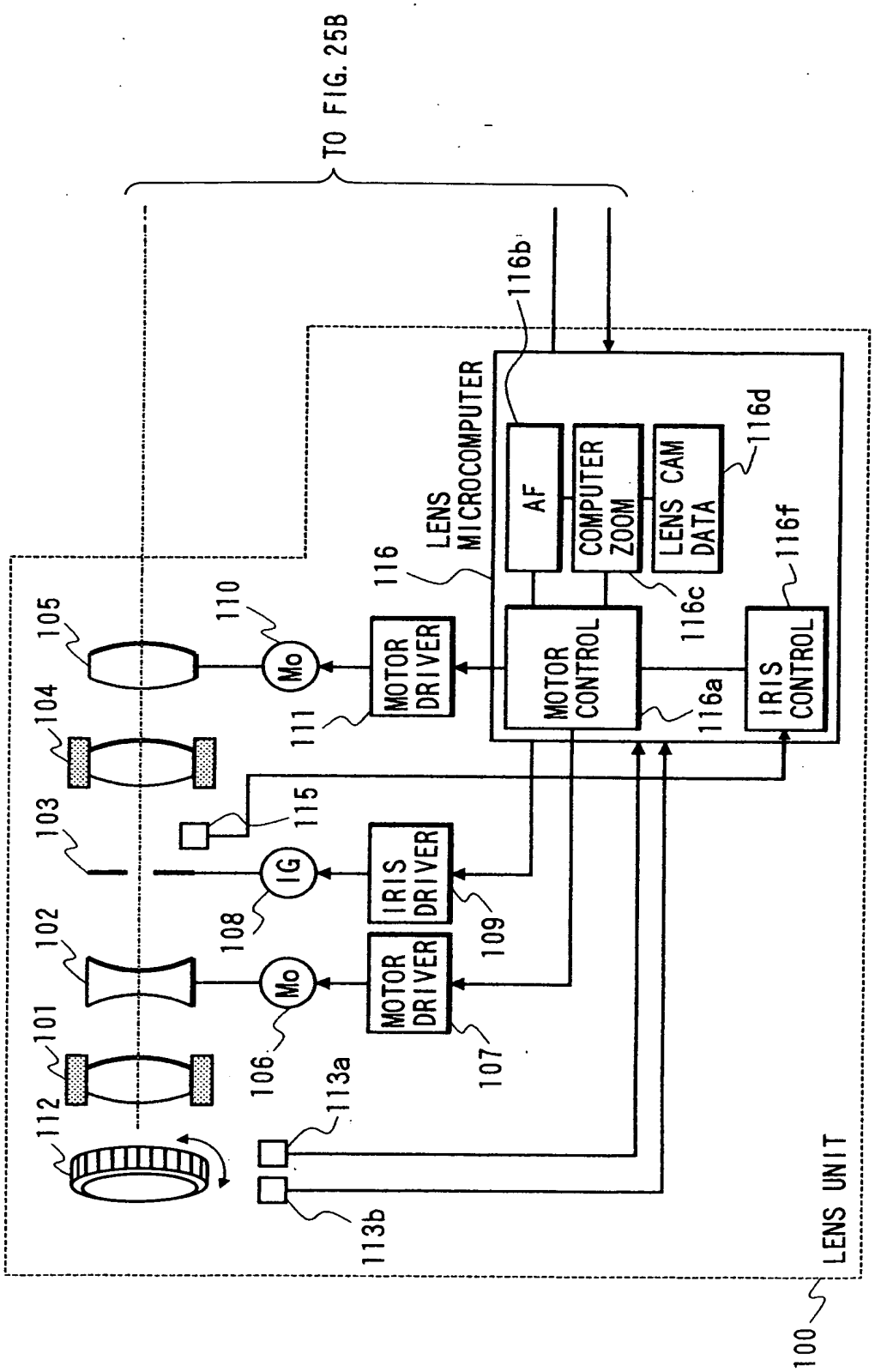


FIG. 25B

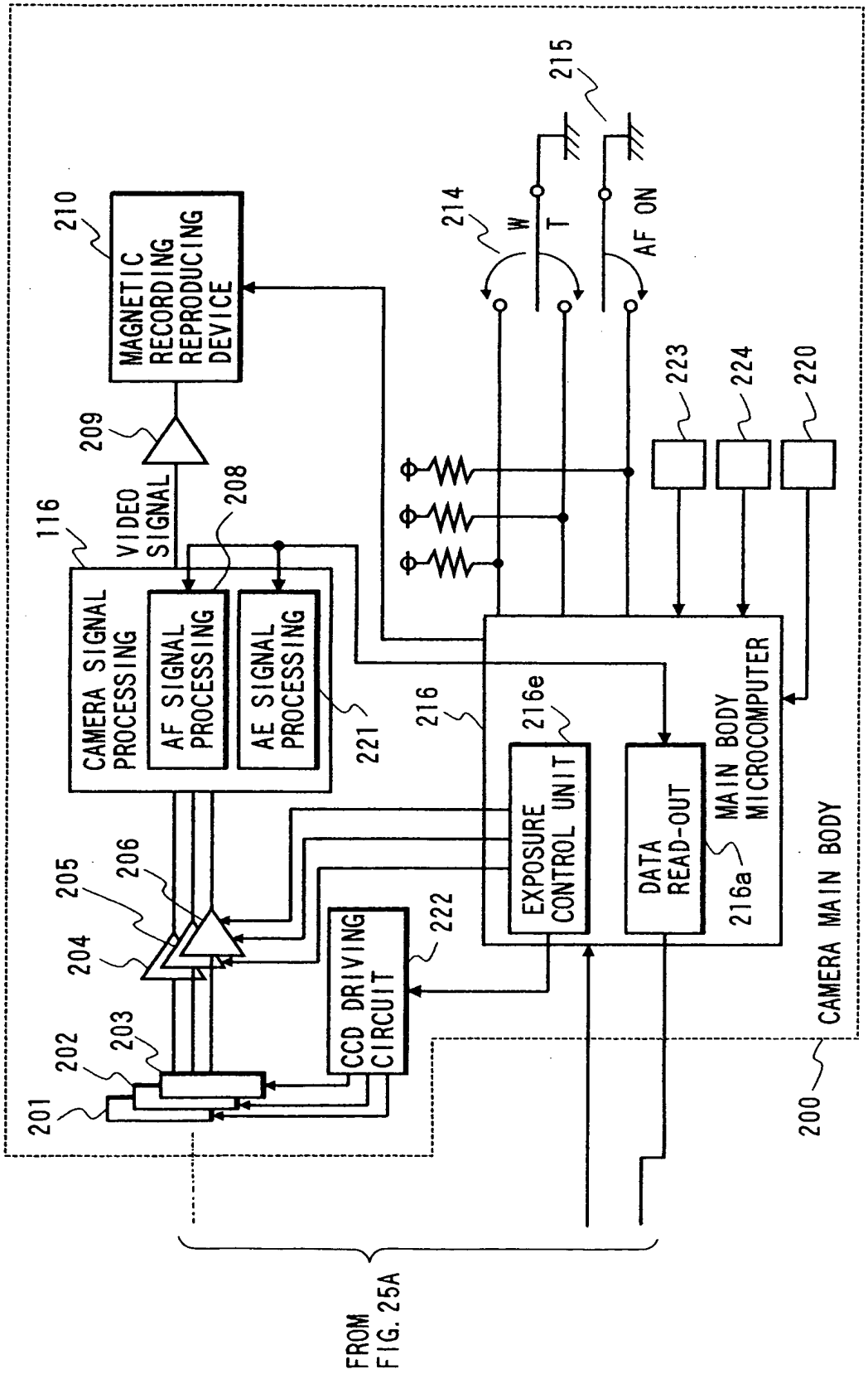

FROM FIG. 25A
201
202
203
204
205
206
CCD DRIVING CIRCUIT
222
CAMERA SIGNAL PROCESSING
AF SIGNAL PROCESSING
AE SIGNAL PROCESSING
221
116
VIDEO SIGNAL
208
209
MAGNETIC RECORDING REPRODUCING DEVICE
210
214
W
T
AF ON
215
223
224
220
216
EXPOSURE CONTROL UNIT
216e
DATA READ-OUT
MAIN BODY MICROCOMPUTER
216a
CAMERA MAIN BODY
200

FIG. 26A

FIG. 26

FIG. 26A	FIG. 26B

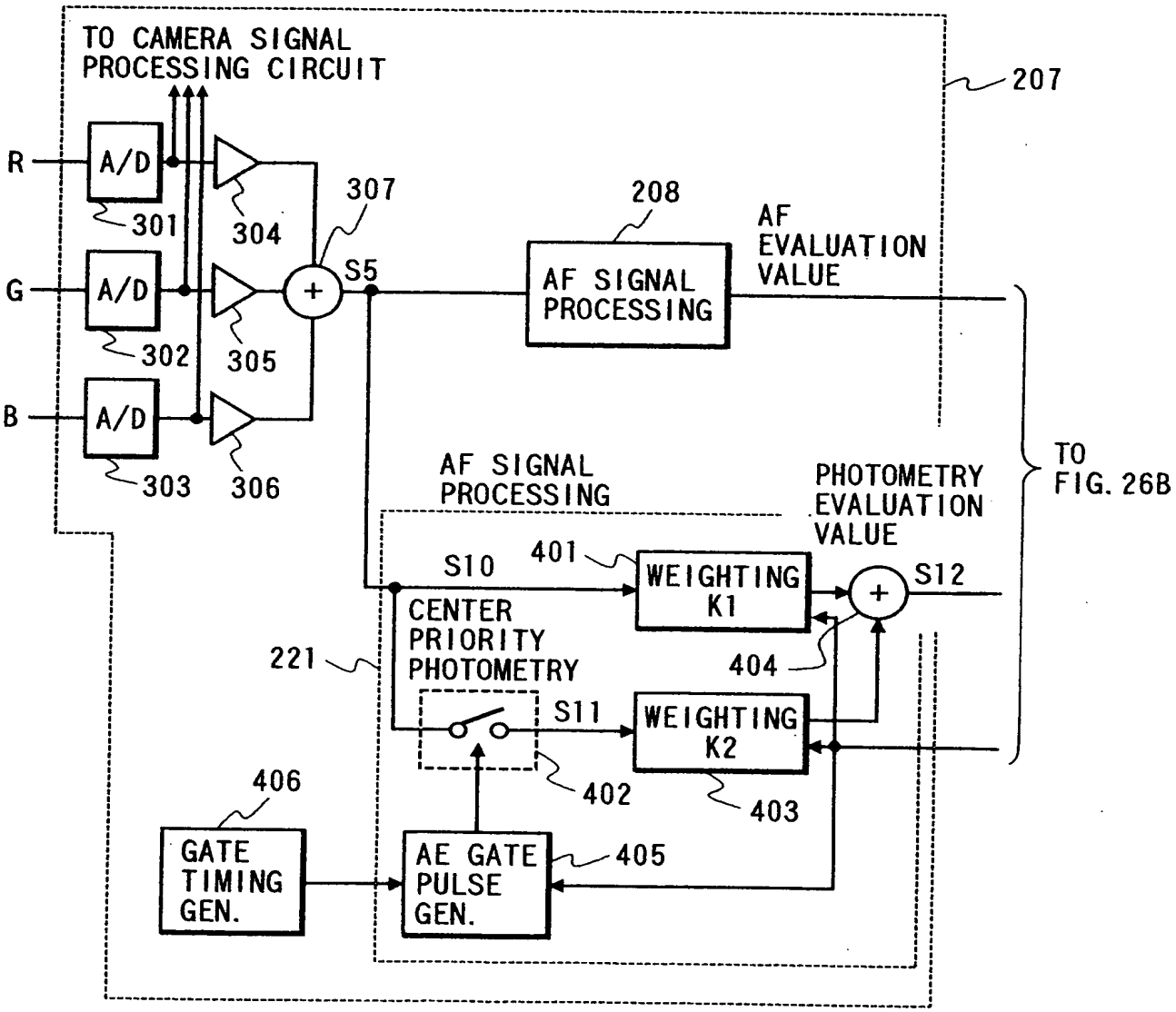
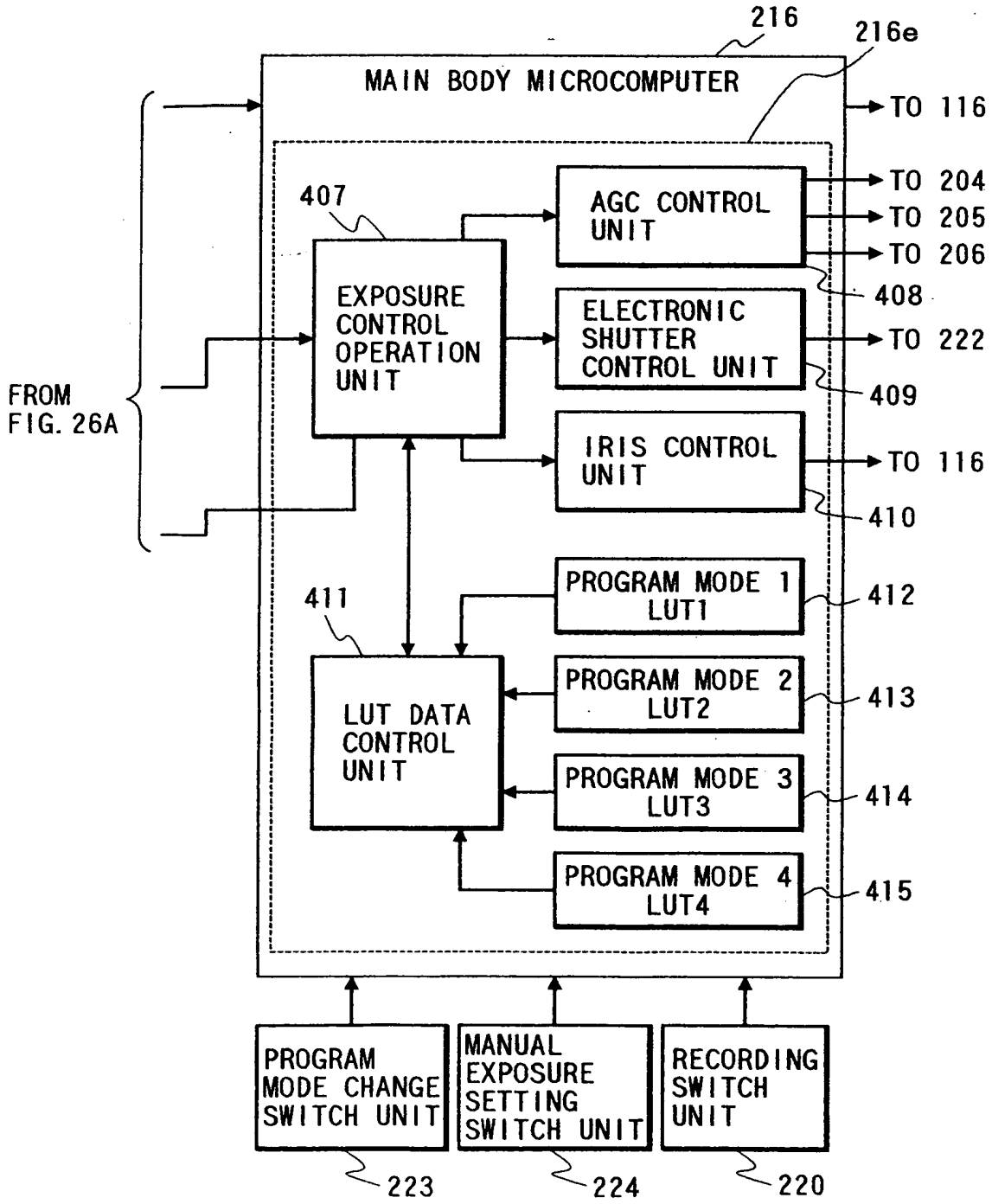


FIG. 26B


216
216e
MAIN BODY MICROCOMPUTER
TO 116
407
AGC CONTROL UNIT
TO 204
TO 205
TO 206
408
EXPOSURE CONTROL OPERATION UNIT
ELECTRONIC SHUTTER CONTROL UNIT
TO 222
409
FROM FIG. 26A
IRIS CONTROL UNIT
TO 116
410
411
PROGRAM MODE 1 LUT1
412
LUT DATA CONTROL UNIT
PROGRAM MODE 2 LUT2
413
PROGRAM MODE 3 LUT3
414
PROGRAM MODE 4 LUT4
415
PROGRAM MODE CHANGE SWITCH UNIT
MANUAL EXPOSURE SETTING SWITCH UNIT
RECORDING SWITCH UNIT
223
224
220